

**REMEDIAL ACTION PLAN
HEAT TREATING BUILDING**

**LINDBERG HEAT TREATING COMPANY
1975 NORTH RUBY STREET
MELROSE PARK, IL**

PROJECT NO. 98002.60

August 16, 2000



**Mabbett & Associates, Inc.
Environmental Consultants & Engineers**

*5 Alfred Circle
Bedford, MA 01730-2346
Telephone: (781) 275-6050
Toll Free: (800) 877-6050
Facsimile: (781) 275-5651
E-mail: info@mabbett.com
Website: www.mabbett.com*

ACKNOWLEDGMENT

This Remedial Action Plan concerning soil and groundwater contamination at the Heat Treating Building was prepared by Mabbett & Associates, Inc. (M&A) on behalf of its client, Lindberg Corporation.

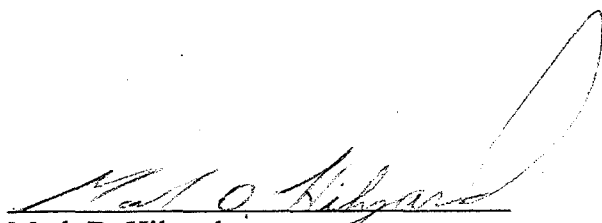
This Remedial Action Plan regarding contaminants of concern in soil and groundwater at a property located at 1975 North Ruby Street, Melrose Park, Illinois (the Site) has been prepared for the sole and exclusive use of Lindberg Corporation (Client) and for submission to the Illinois Environmental Protection Agency (IEPA). This report is subject to and issued in connection with Letter-Agreements dated February 3, 1987; March 31, 1988; June 12, 1989; January 12, 1994; May 27, 1994; July 15, 1994; August 24, 1994; March 4, 1995; August 23, 1995; February 20, 1997; April 3, 1997; July 22, 1997; May 14, 1998; December 21, 1998; and May 23, 1999. This report was prepared based in part on the findings presented in M&A's *Remedial Objectives Report* dated October 26, 1999 and in accordance with IEPA's technical review letter dated May 15, 2000.

Any use or reliance upon information provided in this report, without the specific written authorization of the Client and M&A, shall be at the User's sole risk. Except as defined in M&A's scope of work and presented in this report, accordingly, no attempt has been made to assess the compliance status of any past or present Owner or Operator of the Property with any federal, state, or local laws or regulations.

The findings, observations, and conclusions presented in this report, including the extent of subsurface explorations and other tests, are limited by the scope of services outlined in the Letter-Agreements. The professional opinions and findings presented in this report are based on the facts and information conveyed to or observed by M&A during completion of this phase of the project. Furthermore, site assessment and field operations have been performed in accordance with generally accepted engineering practices and procedures. No other warranty, expressed or implied, is made.

The assessment presented in this report is based solely upon the laws and regulations existing and applicable to this project as of the date of this report, as well as information gathered to date including a limited number of subsurface explorations made on the dates indicated. Should further environmental or other relevant information be developed at a later date, Client should bring such information to the attention of M&A as soon as possible. Based upon an evaluation, M&A may modify this report and its conclusions, accordingly.

This Remedial Action Plan was prepared by the following M&A personnel:



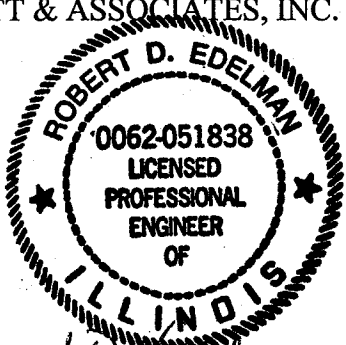
Mark D. Hilyard
Environmental Scientist-Hydrogeologist

ACKNOWLEDGMENT
(Continued)

This report was reviewed and approved by:

MABBETT & ASSOCIATES, INC.

BY:



Robert D. Edelman

Robert Edelman, P.E.
Senior Project Manager

Paul D. Steinberg

Paul D. Steinberg, P.E., LSP
Associate Director of Site Assessment and Remediation Group and
Senior Project Manager

David A. Carlson

David A. Carlson, LSP, LEP
Vice President

EXECUTIVE SUMMARY

This Remedial Action Plan (RAP) was prepared by Mabbett & Associates, Inc. (M&A) for the Lindberg Heat Treating Corporation facility located at 1975 North Ruby Street, Melrose Park, IL. This RAP was developed in accordance with 35 Illinois Administrative Code 740.445 and addresses soil and groundwater contamination located beneath the Heat Treating Building (HTB) at the property.

Based on information presented in the *Site Investigation Report*, dated September 22, 1998, two areas of contamination have been defined beneath the HTB. A lens of dense non-aqueous phase liquid (DNAPL) is centered about intermediate depth well M&A-113. An additional lens of light non-aqueous phase liquid (LNAPL) is centered about well M&A-114. Both areas of contamination are located entirely beneath the HTB building footprint and are currently being contained and remediated by product recovery systems.

Tier 2 soil and groundwater remedial objectives were proposed by M&A in a *Remedial Objectives Report* (October 1999) and conditionally approved with modification by the Illinois Environmental Protection Agency (IEPA) in a May 15, 2000 technical review letter. Soil remedial objectives at the HTB are based in part on exclusion of the industrial/commercial inhalation and ingestion pathways. To restrict potential future exposure via these pathways the following actions will be taken:

- The concrete slab floor currently present over the residual contamination will be maintained as an engineered barrier.
- A deed restriction (institutional control) will be implemented for the area of soil contamination to manage potential future exposure to residual contamination.
- An institutional control has been enacted by the Village of Melrose Park and approved by IEPA, which prohibits groundwater usage in Melrose Park where the Lindberg facility is located.

Groundwater remedial objectives are based in part on pathway exclusion, provided that LNAPL at well M&A-114 and DNAPL at well M&A-113 are removed to the maximum extent practicable and environmental institutional controls restricting groundwater usage are implemented. LNAPL removal at well M&A-114 was initiated in November 1997 and is substantially complete. DNAPL removal at well M&A-113 was initiated in November 1997 and has significantly reduced the volume of recoverable DNAPL.

Lindberg has submitted to IEPA certified copies of the following ordinances to serve as an environmental institutional control for groundwater pathway exclusion.

- Melrose Park Ordinance No. 321, *An Ordinance Prohibiting the Use of Groundwater as a Potable Water Supply by the Installation or Use of Potable Water Supply Wells or by any Other Method, for the Village of Melrose Park, County of Cook, State of Illinois.*
- Melrose Park Ordinance No. 509, *An Ordinance Authorizing and Approving the Adoption of a Memorandum of Understanding Between the Village of Melrose Park and the Illinois Environmental Protection Agency in Connection with Establishing Institutional Controls for the Use of Groundwater as a Potable Supply in the Village of Melrose Park, County of Cook, State of Illinois.*
- *Memorandum of Understanding Between the Village of Melrose Park and the Illinois Environmental Protection Agency Regarding the Use of a Local Groundwater/Water Well Ordinance as an Environmental Institutional Control.*

EXECUTIVE SUMMARY

(Continued)

Semi-annual monitoring of key groundwater monitoring wells will be conducted at the Site until LNAPL and DNAPL are removed to the maximum extent practicable and groundwater remedial objectives have been achieved. Semi-annual groundwater monitoring reports summarizing analytical data and operation and maintenance of the recovery systems will be submitted to IEPA.

TABLE OF CONTENTS

<u>Description</u>	<u>Page</u>
I. INTRODUCTION	1
II. CURRENT AND POST-REMEDIATION USE OF THE PROPERTY	3
III. STATEMENT OF REMEDIAL OBJECTIVES	4
IV. INSTITUTIONAL CONTROLS AND ENGINEERED BARRIERS.....	7
V. SELECTION OF REMEDIAL TECHNOLOGIES.....	9
VI. CONFIRMATORY GROUNDWATER MONITORING PROGRAM.....	13
VII. SUMMARY AND CONCLUSIONS	14

LIST OF TABLES

<u>No.</u>	<u>Description</u>
1	Comparison of Soil Analytical Results to Tier 2 Remedial Objectives

LIST OF DRAWINGS

<u>No.</u>	<u>Description</u>
L-1	Site Locus Plan
L-2	Site Plan
L-3	Detail A – Monitoring Well Locations Plan
L-4	Detail A – Area Subject to Soil Institution Controls
SK-1	Monitoring Well M&A – 113 Product Recovery System Schematic
SK-2	Monitoring Well M&A –114 Product Recovery System Schematic

LIST OF APPENDICES

<u>No.</u>	<u>Description</u>
A	Results of M&A and IEPA Tier 2 Calculations
B	Copies of Melrose Park Ordinances Nos. 321 and 509
C	Manufacturer Specifications
D	Field Reports
E	Deed Restriction for Soil Contamination

I. INTRODUCTION

This Remedial Action Plan (RAP) was prepared by Mabbett and Associates, Inc. (M&A) for the Lindberg Heat Treating Corporation facility located at 1975 North Ruby Street, Melrose Park, IL. This RAP was developed in accordance with 35 Illinois Administrative Code 740.445 and addresses soil and groundwater contamination associated with a lens of light non-aqueous phase liquid (LNAPL) and a separate lens of dense non-aqueous phase liquid (DNAPL) identified beneath the facility's Heat Treating Building (HTB). Two additional petroleum releases have been delineated at wells MCA-2 and M&A-301 (IEMA Incident No.s 891730 and 981877, respectively). However, these two releases are associated with former underground storage tanks and are being administered by the Illinois Environmental Protection Agency (IEPA) under the leaking underground storage tank (LUST) program. The aerial extent of the LNAPL and DNAPL lenses were delineated in a *Focused Site Investigation Report* submitted to IEPA by M&A on September 22, 1998, which was approved by IEPA in an April 27, 1999 correspondence.

Site specific Tier 2 groundwater and soil remedial objectives were developed and presented in a *Remedial Objectives Report, Heat Treating Building* submitted by M&A to the IEPA on October 26, 1999. The Soil Remedial Objectives (SROs) for volatile organic compounds (VOCs) were approved by IEPA in a May 15, 2000 technical review letter. In addition, IEPA established the maximum detected concentrations for each contaminant of concern (COC) within HTB groundwater as the Tier 2 Groundwater Remedial Objectives (GROs).

Approval of the GROs is contingent on the removal of DNAPL and LNAPL to the maximum extent practicable, implementation of a deed restriction, and semi-annual groundwater monitoring. Approval of the SROs is contingent on the maintenance of an engineered barrier and implementation of institutional controls restricting activities in the area of soil contamination and restricting groundwater usage on the property.

Major components of the RAP include:

- Ongoing removal of DNAPL from well M&A-113 to the maximum extent practicable.
- Ongoing removal of LNAPL from well M&A-114 to the maximum extent practicable.
- Implementation of an institutional control for pathway exclusion of soil.
- Implementation an institutional control for pathway exclusion of groundwater.

- Maintenance of an engineered barrier (concrete floor).
- Semi-annual groundwater monitoring of select groundwater monitoring wells until the source areas are remediated (i.e. free product is removed to the extent practicable) and compliance with GROs is achieved.

No additional construction activities are anticipated to implement the RAP. A semi-automatic pneumatic bladder pump recovery system has been effectively removing DNAPL from well M&A-113 since November 1997. A belt skimmer recovery system has been effectively removing LNAPL from well M&A-114 since November 1997. Detailed descriptions of these recovery systems and their performance are presented in Section V of this report.

VOC contaminated soil and groundwater are located entirely beneath the HTB building footprint. SROs and GROs are based, in part, on industrial/commercial land use limitations and pathway exclusions at the Site. Institutional controls, in the form of restrictive covenants and/or deed restrictions, will be implemented in conjunction with the use of an existing engineered barrier (concrete floor) to exclude the potential soil ingestion and inhalation pathways.

Exclusion of the groundwater ingestion pathway is achieved (once free product is removed) by an IEPA approved municipal ordinance, which imposes groundwater use restrictions. Institutional controls are discussed in detail in Section IV of this report.

II. CURRENT AND POST-REMEDIATION USE OF THE PROPERTY

The Lindberg facility consists of a large industrial complex of approximately twelve interconnected buildings, adjacent paved parking areas and concrete slab on grade foundations of former facility buildings. The facility was constructed in the 1950s and has been the site of heat treating facility operations since that time. The Site is zoned "Industrial" and is planned for use as a manufacturing facility into the foreseeable future. The Lindberg facility is surrounded by high-density commercial/industrial operations for an approximate ½ mile radius from the Property. Drawing L-1 depicts Site location and surrounding land use. Drawings L-2 and L-3, Site Plan and Site Plan Detail A, respectively, illustrate the area of concern for this RAP. The Lindberg facility will remain in industrial use for the foreseeable future.

III. STATEMENT OF REMEDIAL OBJECTIVES

Tier 2 Remedial Objectives for each COC beneath the HTB were proposed in the M&A *Remedial Objectives Report, Heat Treating Building* dated October 26, 1999. SROs were approved and GROs were conditionally established by IEPA in a letter dated May 15, 2000.

Soil

Tier 2 SROs were developed in accordance with 35 Illinois Administrative Code Part 742.000, Tiered Approach to Corrective Action Objectives (TACO Section 742) using all soil sampling data points where reported COC concentrations were above applicable Tier 1 remedial objectives but below the soil saturation limit (C_{sat}). The resulting Tier 2 Ingestion and Inhalation SROs for both the industrial/commercial and construction worker scenarios are presented in Table 1, Comparison of Soil Analytical Results to Tier 2 Remedial Objectives. Sampling locations within the HTB are depicted on Drawing L-3, Site Plan Detail A.

Soil sample data point SS-1 from boring M&A-111 and SS-16 from boring M&A-113 were excluded from the Tier 2 analysis since trichloroethylene (TCE) concentrations (1,400,000 ug/kg and 3,600,000 ug/kg, respectively) exceeded the TCE C_{sat} of 1,300,000 ug/kg.

COC concentrations for each discrete soil sampling data point were compared to calculated applicable Tier 2 SROs pursuant to TACO Section 742.600 (f), (g), and (h). Two COCs, vinyl chloride and TCE were reported in soils at concentrations greater than the applicable Tier 2 SROs. TCE concentrations that exceeded applicable Tier 2 SROs were reported at sampling points M&A-115 (24.5-25 feet), M&A-104 (25-27 feet), and M&A-110 (25-25.5 feet). Vinyl chloride concentrations that exceeded applicable Tier 2 SROs were reported at sample points M&A-121 (10.5-11 feet), M&A-127 (6-6.5 feet), and M&A-105 (13-15 feet). Refer to Table 1 for a complete listing of all COCs detected in soil and their calculated Tier 2 SROs.

A total of six sampling points exhibited COC concentrations that exceed applicable Tier 2 Inhalation Exposure Pathway SROs. However, all but one (M&A-127) were located greater than ten feet below grade and therefore were excluded from consideration. The one soil sample from M&A-127 was collected at approximately six feet below grade. However, this sampling point was located beneath an engineered barrier (concrete slab floor) as defined in TACO Subpart K and therefore was also

excluded from consideration based upon the presence of an engineered barrier and contingent on the implementation of an institutional control.

IEPA approved the SROs in a May 15, 2000 correspondence. Approval of these SROs is contingent upon:

- Implementation of a deed restriction (Institutional Control) for the area of soil contamination extending to the 0 mg/kg contour line depicted on Drawing L-4.
- Maintenance of the concrete-slab floor currently present over the contamination to serve as an engineered barrier as depicted in Drawing L-4.
- Implementation of an institutional control restricting groundwater usage at the property

Groundwater

In the May 15, 2000 correspondence IEPA established the following Tier 2 GROs for each COC at the HTB at:

<u>Parameter</u>	<u>Shallow Groundwater</u>	<u>Intermediate Groundwater</u>
1,1-dichloroethylene	0.12 mg/L	0.19 mg/L
cis-1,2-dichloroethylene	480 mg/L	240 mg/L
trans-1,2-dichloroethylene	0.8 mg/L	0.11 mg/L
tetrachloroethene	68 mg/L	200 mg/L
trichloroethylene	1100 mg/L	1100 mg/L
vinyl chloride	7.2 mg/L	0.16 mg/L

These GROs are based on the highest reported concentrations for each COC at the HTB and on an independent Tier 2 Groundwater Evaluation conducted by IEPA. Groundwater concentrations at the Site currently do not exceed the GROs outside the source areas. The results of both the M&A and IEPA Tier 2 groundwater evaluations are presented in Appendix A.

IEPA's establishment of the above listed GROs was contingent on:

- Removal of DNAPL from well M&A-113 and LNAPL from well M&A-114 to the maximum extent practicable.

- Implementation of an environmental institutional control restricting groundwater use at the facility.
- Implementation of a semi-annual groundwater monitoring program at select groundwater monitoring wells until free product is removed to the maximum extent practicable and compliance with GROs is achieved.

IV. INSTITUTIONAL CONTROLS AND ENGINEERED BARRIERS

The following institutional controls will be maintained to prevent human exposure to residual groundwater and soil contamination.

Groundwater

Tier 2 GROs established by IEPA in the May 15, 2000 correspondence, were contingent on the implementation of specific institutional controls at the facility.

Pursuant to Illinois Administrative Code 742.100 (Subpart J), institutional controls must be used when a subject property is determined to be industrial/commercial and when the point of human exposure is located at a place other than the source. The following ordinances have been adopted and were implemented as an environmental institutional control.

- *Ordinance No. 321, An Ordinance Prohibiting the Use of Groundwater as a Potable Water Supply by the Installation or Use of Potable Water Supply Wells or by any Other Method, for the Village of Melrose Park, County of Cook, State of Illinois.*
- *Ordinance No. 509, An Ordinance Authorizing and Approving the Adoption of a Memorandum of Understanding Between the Village of Melrose Park and the Illinois Environmental Protection Agency in Connection with Establishing Institutional Controls for the Use of Ground Water as a Potable Water Supply in the Village of Melrose Park, County of Cook, State of Illinois.*
- *Memorandum of Understanding Between the Village of Melrose Park and the Illinois Environmental Protection Agency Regarding the Use of a Local Groundwater/Water Well Ordinance as an Environmental Institutional Control.*

Certified copies of the above-listed ordinances were submitted to IEPA on June 29, 2000 and copies are provided in Appendix B.

Soil

Tier 2 SROs proposed by Lindberg and approved by IEPA in the May 15, 2000 correspondence were contingent on the maintenance of an engineered barrier and implementation of an associated deed restriction (institutional control) for the area of residual soil contamination. The portion of the property that is underlain by remaining soil contamination is completely covered by an approximately 8-inch thick reinforced concrete-slab floor. No cracks, pits, or sumps have been observed in the floor. The area subject to the deed restriction, limiting Site usage and requiring maintenance of an engineered barrier, is depicted on Drawing, L-4.

A deed restriction is included in Appendix E of this report. This deed restriction specifically delineates the portion of the property subject to the institutional control and establishes permitted and non-permitted activities within the area of institutional control. In addition, Lindberg will maintain a Site-Specific Health and Safety Plan (HASP) and Soil Management Plan. The HASP will include provisions to minimize and manage potential exposure to contaminated soil and groundwater should excavation or construction activities be required in this area in the future. Due to the lack of subsurface utilities at this portion of the property, Lindberg does not anticipate any intrusive activities to occur in this area. However, the Soil Management Plan provides soil and groundwater management procedures should excavation or construction activities be required in this area in the future.

Within 45 days of the receipt of no further remediation determination from IEPA, a deed restriction, prepared pursuant to 35 IAC 742.1010, will be recorded with IEPA and Office of the Recorder or Registrar of Titles for Cook County, State of Illinois. In addition, an institutional control, restricting the use of groundwater at the Site, will be established.

V. SELECTION OF REMEDIAL TECHNOLOGIES

Remedial technologies have been selected and implemented to address the presence of DNAPL at well M&A-113 and LNAPL at well M&A-114. DNAPL at M&A-113 consists of TCE and its degradation compounds and has impacted a sand unit located between 31-33 feet below grade. Due to the presence of an underlying dense silt/till unit, no additional vertical migration of DNAPL has been observed or is anticipated. Hydrogeologic characteristics of the Site are summarized in the *Remedial Objectives Report* dated October 26, 1999.

LNAPL at M&A-114 has been observed at the shallow groundwater table interface and is comprised of quench oil, which has physical properties similar to No. 2 fuel oil.

Both lenses of product were delineated in the *Site Investigation Report* submitted to IEPA on September 22, 1998 and approved by IEPA in a letter dated April 27, 1999. Descriptions of the remedial technologies implemented for source removal of DNAPL and LNAPL are described in the following sections.

DNAPL

The removal of DNAPL from well M&A-113 has been conducted since November 1997 with a stainless steel QED pneumatic Eliminator™ pump equipped with a teflon bladder. Manufacturer specifications for key elements of the QED Eliminator system are presented in Appendix C. A plan depicting features and controls of the product recovery system is presented in Drawing SK-1, Monitoring Well M&A-113 Product Recovery System Schematic.

The pump is set at 31 feet below grade at the bottom of well M&A-113, which is screened across the DNAPL impacted sand unit. The system is run on compressed air, which passes through a gross particle filter and oil coalescing filter prior to injection into the bladder pump. Pump air supply lines and product return lines are constructed of reinforced nylon tubing. Recovered product and groundwater is collected in a 55-gallon drum located adjacent to the well head.

The system is controlled by a QED DPS 360 pneumatic/electric controller. This controller includes a pressure regulator, solenoid switch, pressure gauge and electronic timers. The system also includes a

high level control consisting of a pneumatic shut-off control system. When the product storage drum is approximately 2/3 full a back-pressure device automatically shuts off the air supply for the pneumatically driven Eliminator™ pump, thus effectively shutting down the system.

As presented in M&A's *Site Investigation Report*, dated September 22, 1998, well M&A-113 appears to be located in the center of the DNAPL lens. The geology of the Site (silt, clay, and very fine sand) limits the use of alternative methods of remediation that can be employed for the removal of VOC contamination in soil and groundwater. Data presented in the *Site Investigation Report* and *Remedial Objectives Report* indicated that on-site soils have a very low permeability. High vacuums were applied to on-site recovery and groundwater monitoring wells with little or no soil vapor flow observed. A soil vapor recovery/groundwater pilot test conducted in October 1994 concluded that conventional pump and treat and/or soil vapor extraction techniques were not technically feasible alternatives to remediate soil and/or groundwater beneath the HTB.

Based on the results of well yield testing, as described in the *Site Investigation Report* (September 22, 1998), the bladder pump was programmed to pump approximately 2-3 gallons of fluids (DNAPL /groundwater) a day to maximize DNAPL recovery.

Installation and operation of the QED Eliminator pump and control system has had little impact on the daily operations at the facility. The pump apparatus is located entirely inside the well and the associated 55-gallon storage drum and tubing are protected by a steel enclosure. Operation and maintenance of the recovery system involves changing the product recovery drum approximately every two weeks and is completed by on-site maintenance personnel with technical assistance and oversight provided by M&A on a periodic and as needed basis.

Source removal efforts at well M&A-113 have yielded approximately 188 gallons of DNAPL and 909 gallons of groundwater. The proportionate amount of DNAPL recovered in each 55-gallon drum has been reduced from approximately 8-10 gallons per drum at system start up to approximately one gallon per drum. Based on the observed DNAPL recovery volumes, the volume of DNAPL present in the area of well M&A-113 has been significantly reduced. The recovery system operation will be maintained until recoverable DNAPL at well M&A-113 has been recovered to the maximum extent practicable. A plot of DNAPL volume observed in each drum and field reports for recovery system operation are provided in Appendix D. As shown by the plot, the relative quantity of DNAPL

recovered has been declining over time, indicating a decreasing trend in the mass of recoverable DNAPL in the subsurface.

LNAPL

LNAPL from M&A-114 is being removed through the use of an ABANAKI PetroXtractor™ Well Oil Skimmer, which has been operational at well M&A-114 since November 20, 1997. The belt skimmer discharges into a 55-gallon drum equipped with an automatic overflow shut off. Prior to installation of the recovery system, a maximum LNAPL layer of two feet was observed at well M&A-114. Hand bailing of product from the well reduced the average LNAPL thickness to two inches or less, at which time the belt skimmer was installed. During the first week of operation the belt skimmer was operational for approximately three hours a day. However, field reports indicated that after one week no additional recharge of LNAPL appeared to be occurring. The frequency of belt skimmer operation was reduced to 1-2 hours several times a week. Currently the belt skimmer is operated twice a week for approximately four hours at a time. A plan depicting major features and controls of the product recovery system is presented in Drawing SK-2, Monitoring Well M&A-114 Product Recovery System Schematic, and manufacturer's specifications are presented in Appendix C. Field reports for the operation of the belt skimmer are provided in Appendix D.

As presented in M&A's *Site Investigation Report* (September 22, 1998), well M&A-114 is located in the center of the LNAPL lens. The geology of the Site (silt, clay, and very fine sand) limits the use of alternative methods of remediation that can be employed for the removal of LNAPL contamination to soil and groundwater. Data presented in the *Site Investigation Report* and *Remedial Objectives Report* indicate that on-site soils have a very low permeability. High vacuums were applied to on-site recovery and groundwater monitoring wells with little or no soil vapor flow observed. A soil vapor recovery/groundwater pilot test conducted in October 1994 concluded that conventional pump and treat and/or soil vapor extraction techniques were not technically feasible alternatives to remediate soil and/or groundwater beneath the HTB.

Installation and operation of the ABANAKI PetroXtractor™ Well Oil Skimmer has had minimal impact to the daily operation of the facility. Operation of the remediation system involves on-site maintenance personnel turning on the power supply for operation on a semi-weekly basis. Field reports are forwarded to M&A for review on a regular basis.

Through July 6, 2000, a total of approximately 15 gallons of oil have been recovered from well M&A-114. Field reports have indicated little or no product on the belt skimmer for the past six months. The belt skimmer will be removed and the recurrence of LNAPL will be monitored by an oil absorbent sock. This sock will be placed in the well to collect any potential residual oil that may appear on the water table. If after a three-month period, product does not re-appear, recovery operations will be considered to have removed LNAPL to the maximum extent practicable.

VI. CONFIRMATORY GROUNDWATER MONITORING PROGRAM

Semi-annual sampling, analysis, and reporting of groundwater conditions at key monitoring wells will be conducted until free product is removed to the maximum extent practicable and residual VOC concentrations in groundwater meet established GROs.

- The distribution of TCE in intermediate depth groundwater will be monitored by sampling intermediate depth wells M&A-111, M&A-115, M&A-119, M&A-121, M&A-122, and M&A-126.
- The distribution of vinyl chloride in shallow groundwater will be monitored by sampling shallow wells MCA-2, M&A-107, M&A-112, M&A-116, and M&A-120.
- The distribution of VOCs in shallow groundwater will be monitored by sampling shallow wells M&A-103, M&A-104, M&A-105 and MCA-5.

Groundwater samples will be analyzed for halogenated VOCs by EPA Method 8010. Groundwater sampling results will be reviewed with respect to GROs, historical trends, and contaminant distribution. Groundwater data will be tabulated and contaminant distribution maps will be prepared as appropriate. A summary report will be prepared and submitted to IEPA within 30 days of receipt of the analytical data.

VII. SUMMARY AND CONCLUSIONS

Based on information presented in a *Site Investigation Report* (September, 1998) two areas of contamination have been defined beneath the HTB. A lens of DNAPL is centered about intermediate depth well M&A-113 and a lens of LNAPL is centered about well M&A-114. Both areas are located entirely beneath the HTB footprint and are currently being contained and remediated by extraction equipment. Tier 2 SROs and GROs were proposed in a *Remedial Objectives Report* (October 1999) and were conditionally approved by IEPA in a May 15, 2000 technical review letter.

Remedial Objectives

Groundwater quality at the Site currently meets the prescribed GROs outside of the source areas for LNAPL and DNAPL. Recovery systems are in operation to remove source area LNAPL and DNAPL to the maximum extent practicable. A semi-annual groundwater monitoring program will be implemented to confirm compliance with GROs until the source areas are remediated. An institutional control had been implemented to prohibit the use of groundwater as a potable water supply in the area of the Site.

Soil conditions meet the prescribed SROs. The existing concrete-slab floor will be maintained as an engineered barrier to exclude potential exposure pathways associated with residual soil contamination. A deed restriction will be recorded with the state of Illinois and village of Melrose Park within 45 days of receipt of a No Further Remediation designation from IEPA.

Remedial Technologies

Product recovery systems have been effective in the removal of DNAPL and LNAPL since operations were initiated in 1997. Both remedial systems have been demonstrated to be reliable technologies over the past three years.

LNAPL at M&A-114 appears to have been effectively removed by the belt skimmer product recovery system. Recoverable quantities of LNAPL have not been observed in the past six months. The deployment of absorbent media in the well is proposed to monitor the presence of LNAPL and to absorb any recurring product. If LNAPL is not observed after monitoring period of three additional months it will be concluded the LNAPL has been remediated to the maximum extent practicable.

The DNAPL recovery rate at well M&A-113 has been decreasing with time. The drop in the recovery rate indicates that the mass of recoverable DNAPL in the subsurface has been significantly reduced. The operation of the recovery system will continue until recovery data confirms that DNAPL has been remediated to the maximum extent practicable. Based on current data, it is anticipated that the recovery system will remain in operation for the next 12 to 24 months.

Institutional Controls

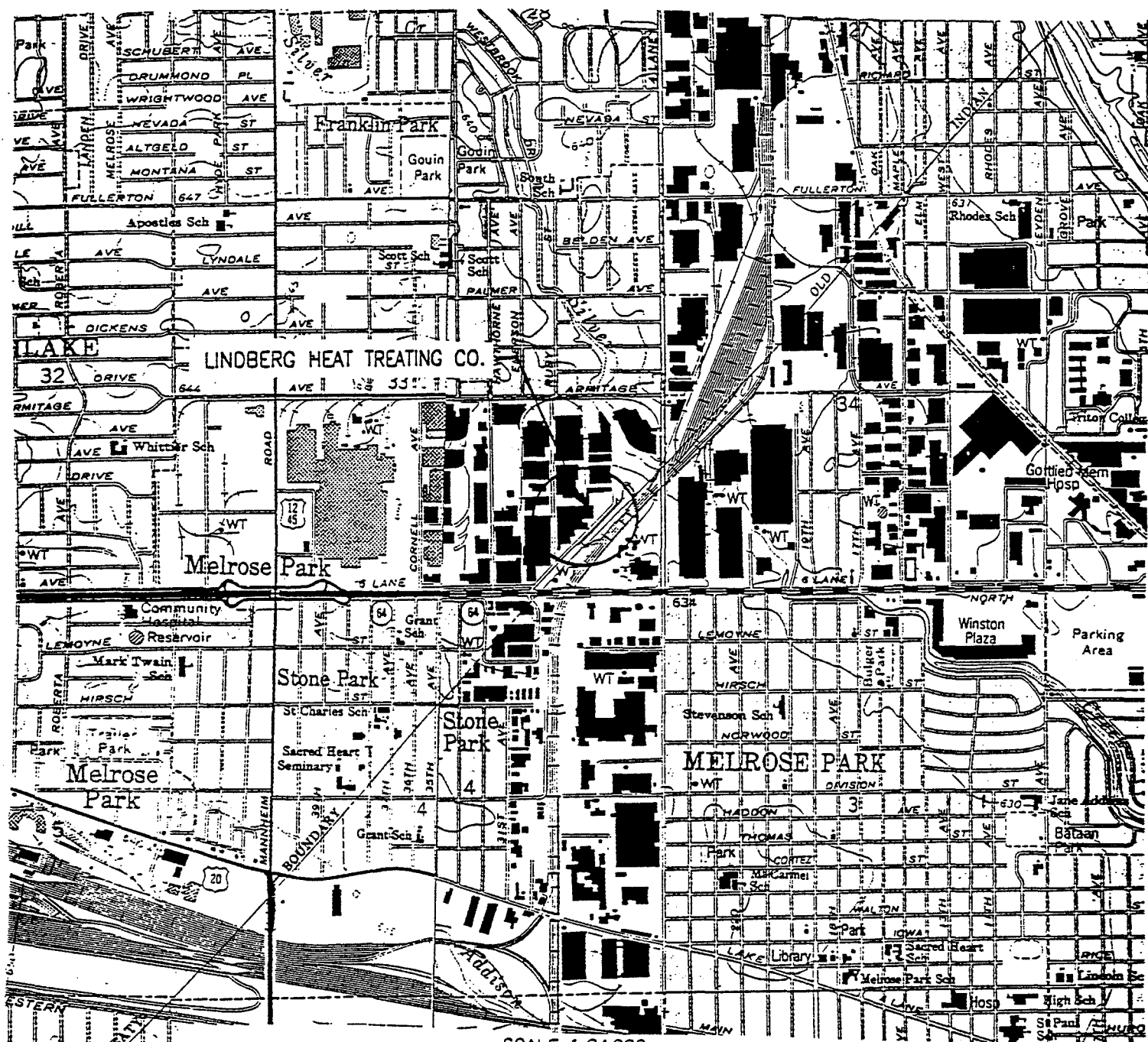
Pursuant to TACO Section 742.600 and IEPA May 15, 2000 correspondence, Lindberg has submitted certified copies of Melrose Park Ordinance No. 321, *An Ordinance Prohibiting the Use of Groundwater as a Potable Water Supply by the Installation or Use of Potable Water Supply Wells or by any Other Method, for the Village of Melrose Park, County of Cook, State of Illinois* and Melrose Park Ordinance No. 509, *An Ordinance Authorizing and Approving the Adoption of a Memorandum of Understanding Between the Village of Melrose Park and the Illinois Environmental Protection Agency in Connection with Establishing Institutional Controls for the Use of Groundwater as a Potable Supply in the Village of Melrose Park, County of Cook, State of Illinois* to IEPA to serve as environmental institutional controls that exclude the groundwater exposure pathway at the Site.

In addition a copy of the *Memorandum of Understanding Between the Village of Melrose Park and the Illinois Environmental Protection Agency Regarding the Use of a Local Groundwater/Water Well Ordinance as an Environmental Institutional Control* was submitted to the IEPA.

A Proposed deed restriction, to serve as an institutional control for residual soil contamination, is included in Appendix E of this report. Upon receipt of a No Further Remediation designation from IEPA, this deed restriction will be recorded pursuant to 35 Ill. Admin. Code 742.1010.

Groundwater Monitoring Program

Semi-annual sampling, analysis, and reporting of groundwater conditions at key groundwater monitoring wells will be conducted until final remediation of the units is achieved. Groundwater samples will be analyzed for halogenated VOCs by EPA method 8010 to monitor the LNAPL and DNAPL constituents previously identified beneath the HTB. A summary report will be prepared and submitted to IEPA within 30 days of the receipt of the analytical data.



SCALE 1:24,000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 KILOMETERS

CONTOUR INTERVAL 5 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

RIVER FOREST QUADRANGLE
ILLINOIS-COOK CO.

7.5 MINUTE SERIES (TOPOGRAPHIC)

ILLINOIS

QUADRANGLE LOCATION

UTM GRID AND 1993 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

LINDBERG HEAT TREATING CO.

MELROSE PARK, IL

SITE
LOCATION MAP

DWG NO.

L-1



Mabbett & Associates, Inc.
Environmental Consultants & Engineers

SCALE: AS NOTED

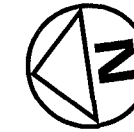
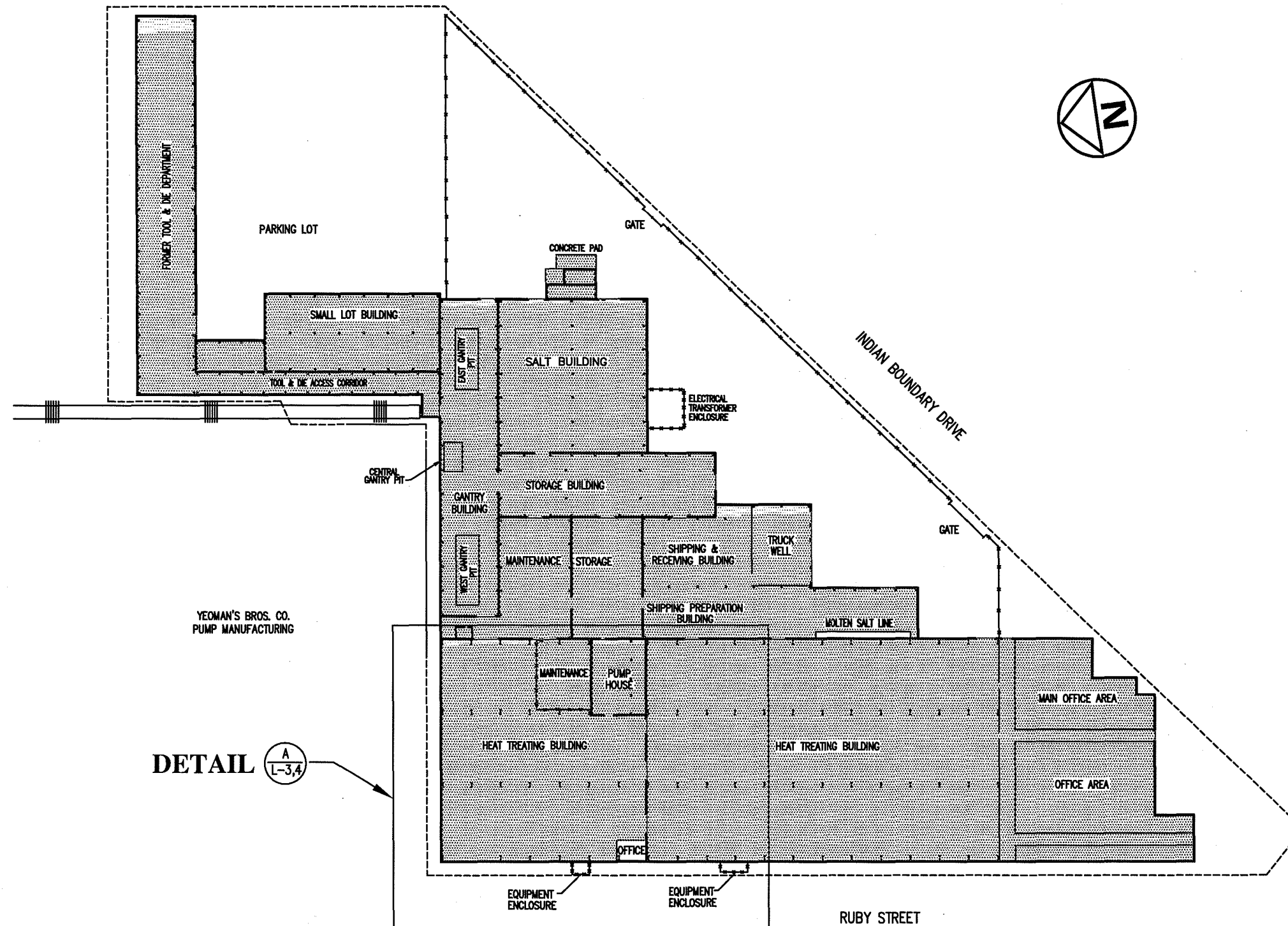
DR BY: DJA

DATE: 10/22/99

AP BY: *PRS*

PROJ NO.

98002.43



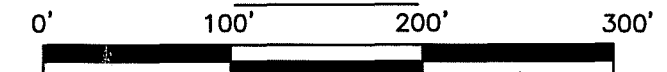
NOTES:

1. THE INFORMATION ON THIS PLAN IS BASED ON A PLAN ENTITLED LINDBERG CORPORATION, 1975 NORTH RUBY STREET, MELROSE PARK, ILLINOIS BY MARSH & MCLENNAN, INC., PROPERTY LOSS PREVENTION DEPT. DATED MARCH 3, 1969 AND FIELD OBSERVATIONS BY M&A PERSONNEL. ALL LOCATIONS AND PROPERTY LINES ARE APPROXIMATE.

LEGEND:

- PROPERTY LINE
- SUPPORTING COLUMN
- - - - - SUPPORTING COLUMN
- CHAIN LINK FENCE
- ||||| RAIL SIDING
- ▨ AREA OF FACILITY BUILDING FINISHED WITH POURED CONCRETE-SLAB FLOOR

SCALE:



LINDBERG HEAT TREATING CO.

MELROSE PARK, IL



Mabbett & Associates, Inc.
Environmental Consultants & Engineers

SITE PLAN

SCALE: 1"=100'-0"

DR BY: DJA

DATE: 8/15/02

AP BY: PJS

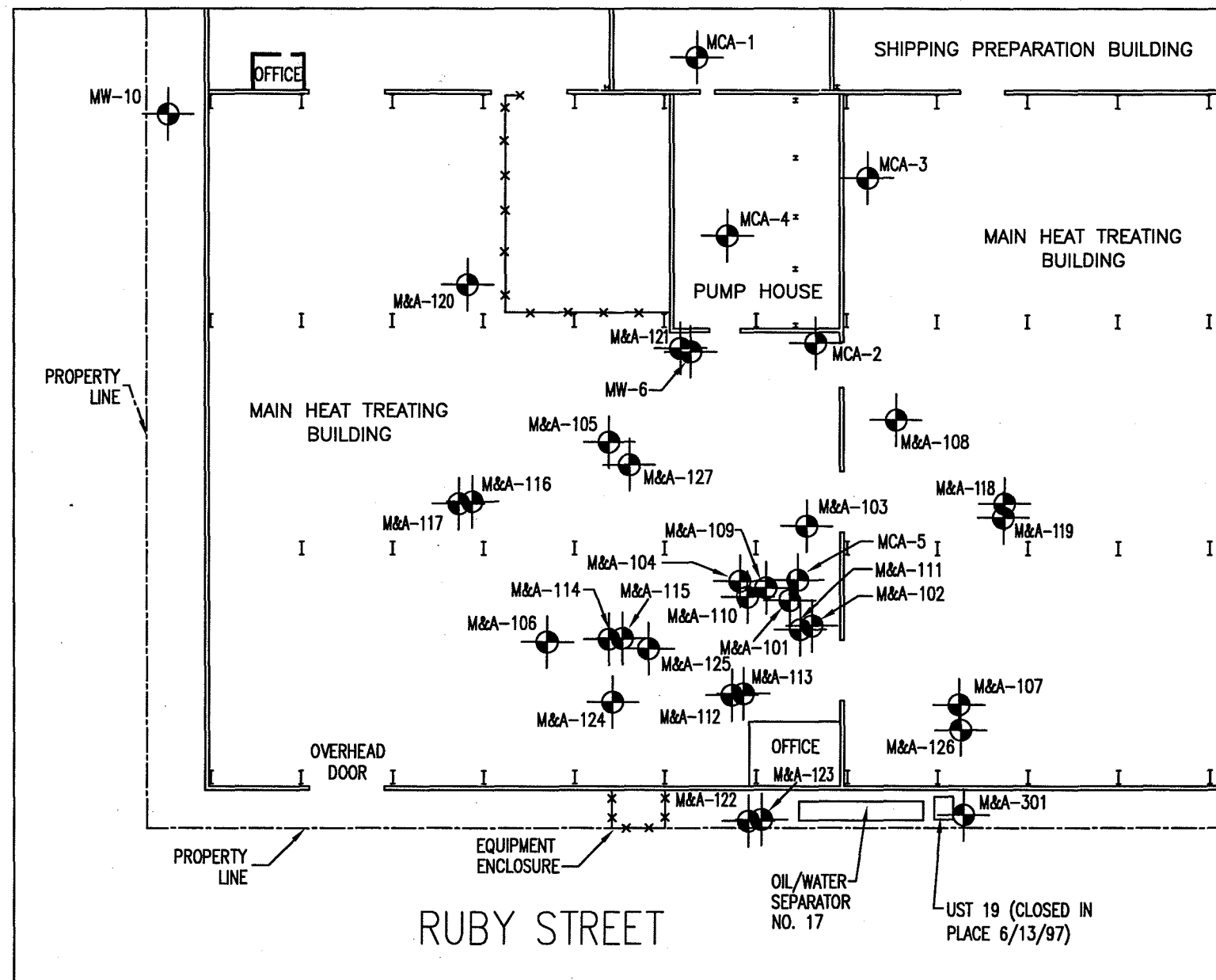
DRAWING NO.

L-2

PROJECT NO.

98002.60

Copyright, 2000
Mabbett & Associates, Inc.



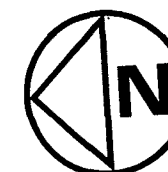
DETAIL A

NOTES:

2. MONITORING WELL AND BORING LOCATIONS INSTALLED PRIOR TO 1997 ARE BASED ON FIELD MEASUREMENTS TAKEN BY M&A PERSONNEL.
2. MONITORING WELL AND BORING LOCATIONS INSTALLED DURING AND AFTER 1997 ARE BASED ON FIELD MEASUREMENTS TAKEN BY AN ILLINOIS REGISTERED LAND SURVEYOR.

LEGEND:

- MONITORING WELL LOCATION
- BORING LOCATION
- APPROXIMATE PROPERTY LINE
- CHAIN LINK FENCE
- SUPPORTING COLUMN



SCALE:



LINDBERG HEAT TREATING CO.
MELROSE PARK, ILLINOIS



Mabbett & Associates, Inc.
Environmental Consultants & Engineers

DETAIL A,
MONITORING WELL
LOCATIONS PLAN

SCALE: 1"=40'-0"

DR BY: DJA

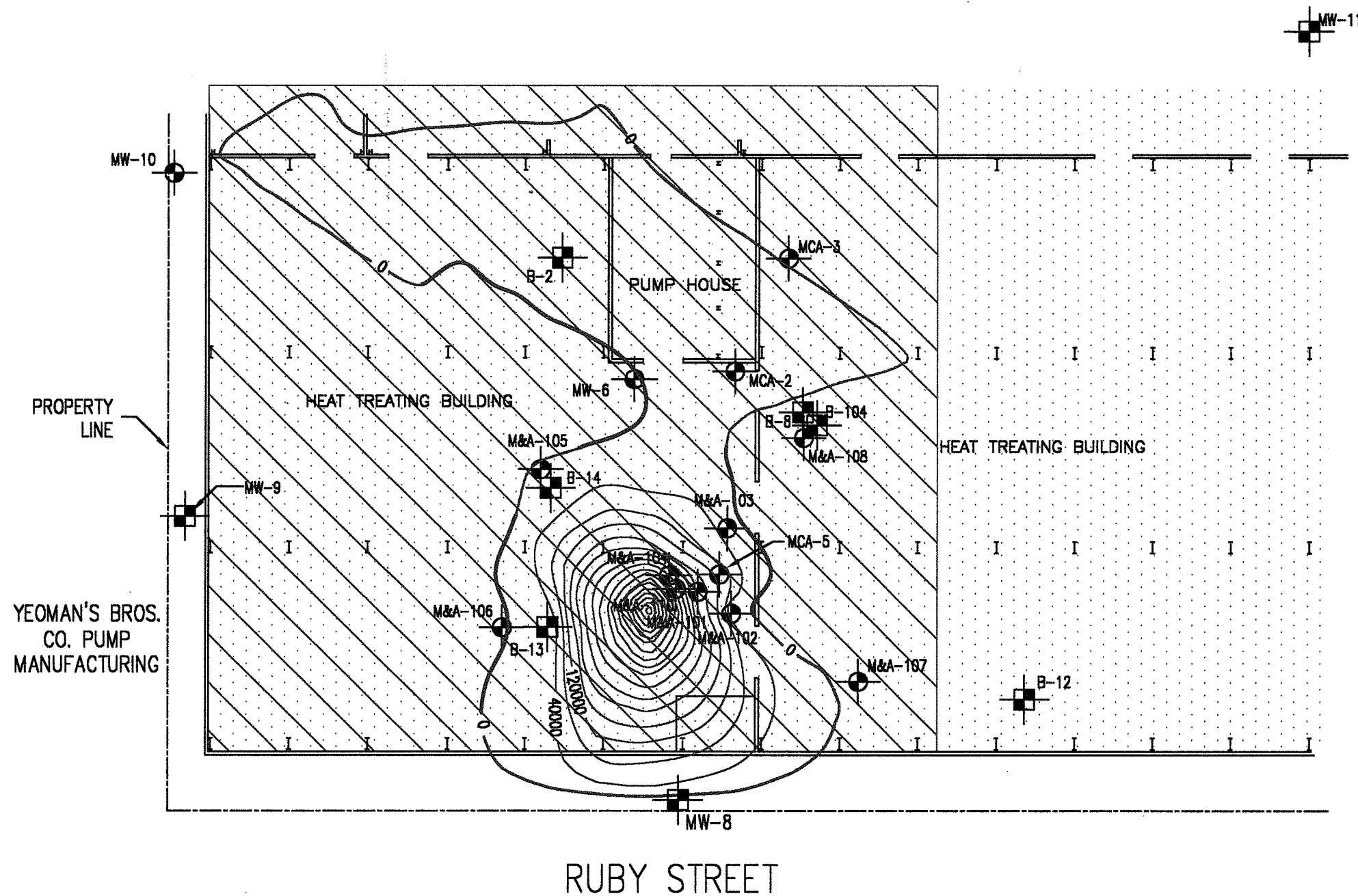
DATE: 8/15/02

AP BY: [Signature]

DRAWING NO.

L-3





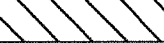

PROJECT NO.
98002.60



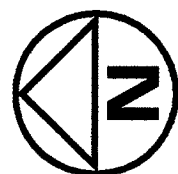
NOTES:

1. MONITORING WELL LOCATIONS ARE BASED ON FIELD MEASUREMENTS TAKEN BY M&A PERSONNEL.
2. ALL CONCENTRATION CONTOURS ARE APPROXIMATE BASED ON LIMITED DATA POINTS.
3. DIAGRAM TAKEN FROM A PREVIOUSLY GENERATED M&A REPORT.

LEGEND

-  MONITORING WELL LOCATION
-  BORING LOCATION
-  PROPERTY LINE
-  40,000 $\mu\text{g}/\text{kg}$ CONTOUR INTERVAL
- SUPPORT COLUMN
-  AREA OF SOIL CONTAMINATION BENEATH HEAT TREATING BUILDING THAT IS SUBJECT TO DEED RESTRICTION IMPLEMENTED TO MAINTAIN THE EXISTING ENGINEERED BARRIER (CONCRETE-SLAB FLOOR)
-  AREA OF FACILITY BUILDING FINISHED WITH POURED CONCRETE-SLAB FLOOR

SCALE:



LINDBERG HEAT TREATING CO.
MELROSE PARK, IL

M&A
Mabbett & Associates, Inc.
Environmental Consultants & Engineers

SITE PLAN DETAIL "A"
AREA SUBJECT TO INSTITUTIONAL
CONTROLS

SCALE: 1"=40'-0"

DR BY: DJA

DATE: 8/15/00

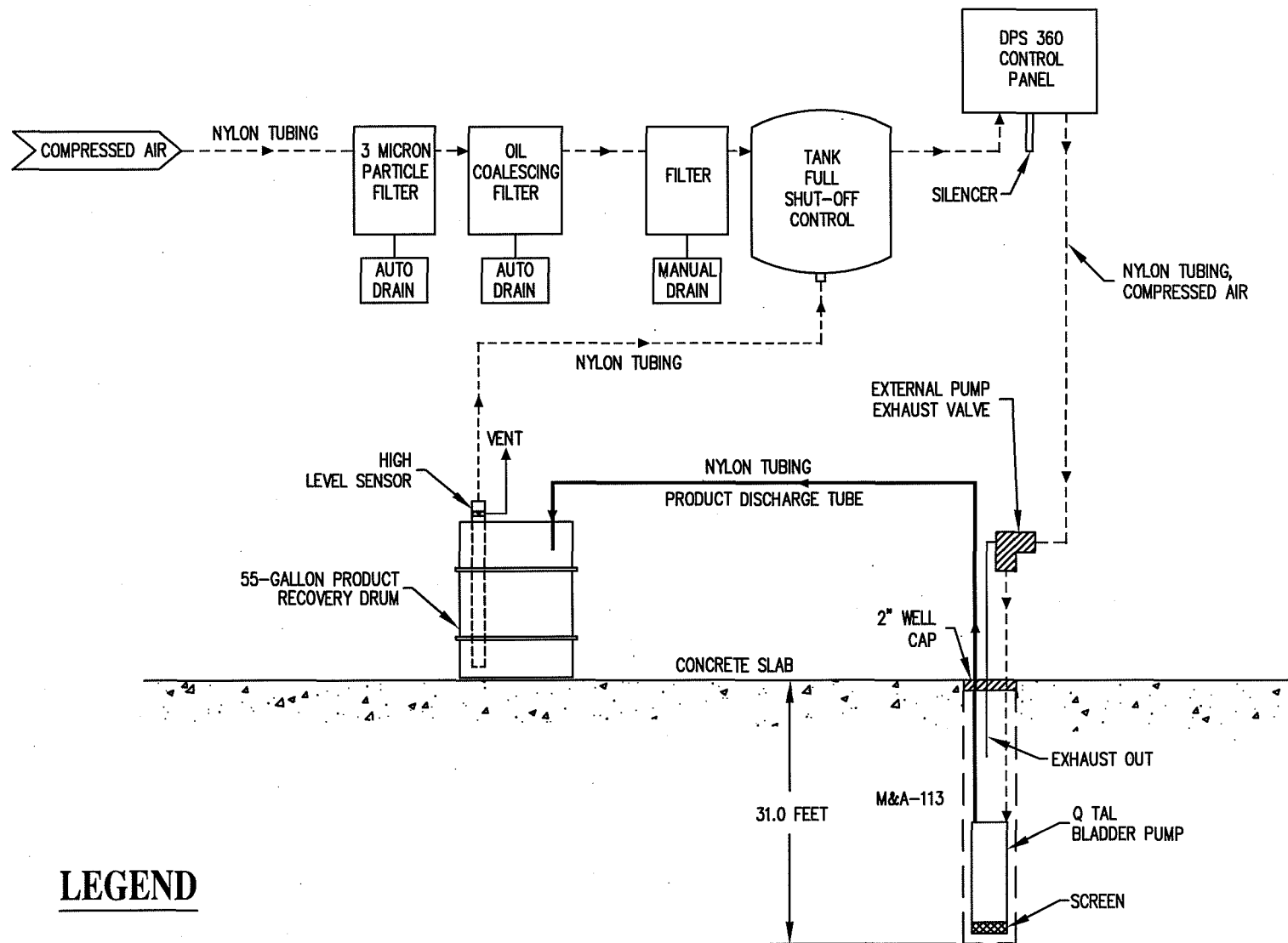
AP BY: RPS

DRAWING NO.

L-4

PROJECT NO.
98002.60

Copyright, 2000
Mabbett & Associates, Inc.



LEGEND

- DIRECTION OF FLOW
- COMPRESSED AIR TUBING
- PRODUCT TUBING

Copyright, 2000
Mabbett & Associates, Inc.

LINDBERG HEAT TREATING CO.

MELROSE PARK, ILLINOIS



Mabbett & Associates, Inc.
Environmental Consultants & Engineers

MONITORING WELL M&A-113
PRODUCT RECOVERY SYSTEM
SCHEMATIC

SCALE: NONE

DR BY: DJA

DATE: 8/15/00

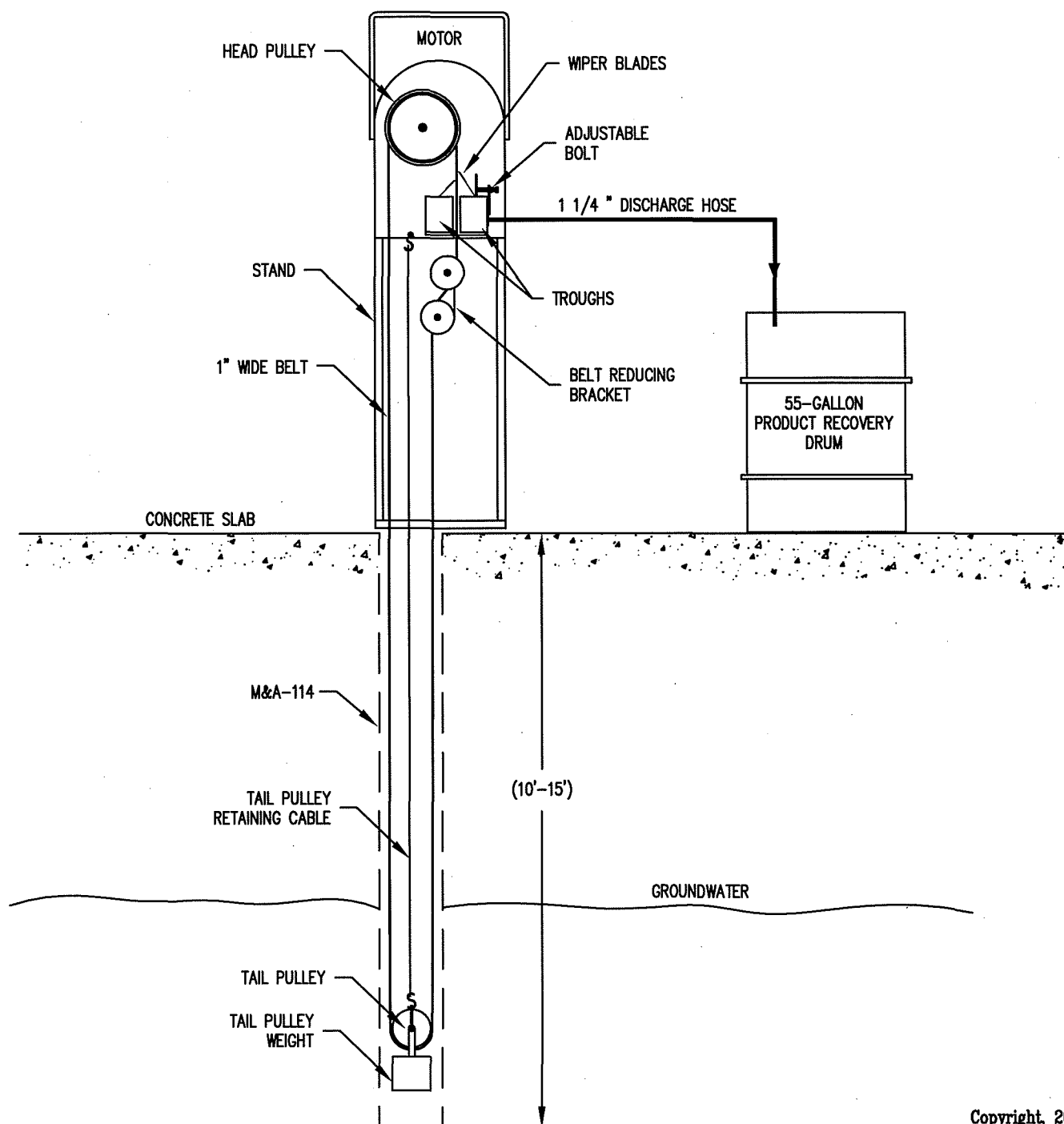
AP BY: *PDS*

DWG NO.

SK-1

PROJ NO.

89002.60



Copyright, 2000
Mabbett & Associates, Inc.

LINDBERG HEAT TREATING CO.

MELROSE PARK, ILLINOIS



Mabbett & Associates, Inc.
Environmental Consultants & Engineers

MONITORING WELL M&A-114
PRODUCT RECOVERY SYSTEM
SCHEMATIC

SCALE: NONE

DR BY: DJA

DATE: 8/15/02

AP BY: *TDS*

DWG NO.

SK-2

PROJ NO.

98002.60

APPENDIX A
RESULTS OF M&A AND IEPA TIER 2 CALCULATIONS

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

C _{source} (mg/L)	See below	α_y (cm)	203
X (cm)	6,100.00	S _d (cm)	180
α_x (cm)*	610	α_z (cm)	31
λ (1/day)***	See below	K (cm/d)	0.02
U (cm/d)*	0.0017	i (unitless)	0.0300
Sw (cm)	2,440	θ_T (unitless)**	0.40

* α_x , α_y , α_z , and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)

*** Chemical Properties (see Datasheet C)

Chemical Name	λ (1/day)	C _{source} * (mg/L)	C(x) (mg/L)
Dichloroethylene, 1,1-	0.0053000	0.12000	2.12E-191
Dichloroethylene, cis-1,2-	0.0002400	33.00000	3.95E-38
Dichloroethylene, trans-1,2-	0.0002400	0.80000	9.57E-40
Tetrachloroethylene	0.0009600	0.59000	1.24E-80
Trichloroethylene	0.0004200	270.00000	2.26E-50
Vinyl chloride	0.0002400	7.20000	8.62E-39

* Note: C_{source} is the measured concentration at the source for this form.

Initial Cleanup Objectives - SSL Procedure - Industrial/Commercial Exposure Scenario

This report presents the initial cleanup objectives (CUO) for the constituents at the site as determined by the Soil Screening (SSL) procedure. If the Mixture Rule is applicable, these initial Cleanup Objectives may be modified according to the procedures set forth in 35 IAC 740.805. All cleanup objectives are in mg/kg.

Constituent	<u>Ingestion</u>		<u>Inhalation</u>	
	CUO	Comments	CUO	Comments
Dichloroethylene, cis-1,2-	20,440.00	Based on non-carcinogenic effects	1,583.49	Inhalation of Volatiles: non-carcinogenic effects: Capped by Csat
Dichloroethylene, trans-1,2-	40,880.00	Based on non-carcinogenic effects	3,704.05	Inhalation of Volatiles: non-carcinogenic effects: Capped by Csat
Dichloroethylene, 1,1-	18,396.00	Based on non-carcinogenic effects	1,646.24	Inhalation of Volatiles: non-carcinogenic effects: Capped by Csat
Tetrachloroethylene	110.06	Based on carcinogenicity	26.73	Inhalation of Volatiles: carcinogenic effects
Trichloroethylene	520.29	Based on carcinogenicity	11.70	Inhalation of Volatiles: carcinogenic effects
Vinyl chloride	3.01	Based on carcinogenicity	0.08	Inhalation of Volatiles: carcinogenic effects
Total CUO Concentration	80,349.36		6,972.29	

Initial Cleanup Objectives - SSL Procedure - Construction Worker Exposure Scenario

This report presents the initial cleanup objectives (CUO) for the constituents at the site as determined by the Soil Screening (SSL) procedure. If the Mixture Rule is applicable these initial Cleanup Objectives may be modified according to the procedures set forth in 35 IAC 740.805. All cleanup objectives are in mg/kg.

Constituent	<u>Ingestion</u>		<u>Inhalation</u>	
	CUO	Comments	CUO	Comments
Dichloroethylene, cis-1,2-	20,404.51	Based on non-carcinogenic effects	1,583.49	Inhalation of Volatiles: non-carcinogenic effects: Capped by Csat
Dichloroethylene, trans-1,2-	40,809.03	Based on non-carcinogenic effects	3,704.05	Inhalation of Volatiles: non-carcinogenic effects: Capped by Csat
Dichloroethylene, 1,1-	1,836.41	Based on non-carcinogenic effects	1,646.24	Inhalation of Volatiles: non-carcinogenic effects: Capped by Csat
Tetrachloroethylene	2,388.49	Based on carcinogenicity	37.59	Inhalation of Volatiles: carcinogenic effects
Trichloroethylene	1,224.27	Based on non-carcinogenic effects	16.46	Inhalation of Volatiles: carcinogenic effects
Vinyl chloride	65.37	Based on carcinogenicity	0.11	Inhalation of Volatiles: carcinogenic effects
Total CUO Concentration	66,728.08		6,987.94	

Initial Cleanup Objectives - RBCA Procedure - Protection of Ground Water

This report presents the initial cleanup objectives (CUO) for the constituents at the site as determined by the ASTM Risk-based Corrective Action (RBCA) procedure to protect ground waters. If the Mixture Rule is applicable these initial Cleanup Objectives may be modified according to the procedures set forth in 35 IAC 740.805. Soil objectives are in mg/kg; ground water objectives are in mg/L.

Constituent	Class I				Class II			
	CUO (Soil)	Comments	CUO (GW)	Comments	CUO (Soil)	Comments	CUO (GW)	Comments
Dichloroethylene, cis-1,2-	1146.068		3500.000		1146.068		3500.000	
Dichloroethylene, trans-1,2-	2428.000		6300.000		2428.000		6300.000	
Dichloroethylene, 1,1-	959.470		2250.000		959.470		2250.000	
Tetrachloroethylene	140.932		200.000		140.932		200.000	
Trichloroethylene	799.784		1100.000		799.784		1100.000	
Vinyl chloride	846.785		2760.000		846.785		2760.000	
Total CUO Concentrations	6,321.04				6,321.04			



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/524-3300

May 15, 2000

CERTIFIED MAIL
P 344 306 086

Mr. Stephen S. Penley
Lindberg Heat Treating Company
1975 North Ruby Street
Melrose Park, Illinois 60160

Re: 0311860011 -- Cook County
Lindberg Heat Treating
ILD005071808
Log No. C-544-M-19
Date Received: October 27, 1999
SRP/Technical

Dear Mr. Penley:

This letter is in response to two reports prepared and submitted October 26, 1999 by Mr. David A. Carlson of Mabbett & Associates, Inc. (M&A) on behalf of Lindberg Heat Treating Company Inc. (LHT). These reports are entitled: Remedial Objectives Report for Heat Treating Building and Remedial Objectives Report for Gantry and Salt Building Area. The reports provided a physical and hydrogeologic site characterization, a summary of subsurface investigation activities to date, a description of the extent of releases, and finally a proposal for site-specific remedial objectives for the Heat Treating Building (HTB) and Gantry Building/Salt Building (GB/SB) at the LHT facility. Remedial activities for contamination in the vicinity of these two buildings is being carried out under Illinois EPA's Site Remediation Program. A site layout map showing the location of these buildings is attached.

In the April 27, 1999 letter (Log No. C-544-M-18), Illinois EPA determined that investigative efforts documented in focused site investigation reports for the areas of concern had been properly conducted and that the next course of action for this project was development of a Remedial Objectives Report. However, Condition 5 of that letter pointed out that LHT's proposal in the focused site investigation reports to exclude the groundwater exposure route pursuant to 35 Ill. Adm. Code 742.320 could not be approved as adequate documentation regarding local groundwater protection ordinances had not been provided.

There are four areas of contamination of concern (shown on the attached drawing) beneath the HTB and GB/SB characterized as follows:

1. In the HTB in the vicinity of wells M&A 104, 110, 111, and 113 where dense non-aqueous phase liquids (DNAPLs) primarily containing trichloroethylene (TCE), are present in soil and groundwater;
2. In the HTB in the vicinity of wells MCA-2, M&A 301 and M-114 where light non-aqueous phase liquid (LNAPLs) comprised of petroleum and non-chlorinated VOCs are present in soil and groundwater;
3. In the GB/SB, an area outside the east door of the GB with volatile organic compounds (VOCs) present in soil and groundwater; and
4. In the GB/SB in an area south of the East Gantry Pit in the east portion of the GB with cyanide present in groundwater.

The subject submittals were handled as a request to modify the approved workplans for the HTB and GB/SB at the LHT facility and are hereby approved subject to the following conditions and modifications and also those set forth in ATTACHMENT A - Heat Treating Building, and ATTACHMENT B - Gantry Salt Building to this letter.

1. All activities implemented to address contamination identified in this letter must be carried out in accordance with 35 Ill. Code 740.
2. To ensure the requirements of 35 Ill. Adm. Code 740.410 are met, all future submittals to Illinois EPA must contain a completed DRM-2 form.
3. The Remedial Action Plan due to the Illinois EPA by July 17, 2000, should be developed in accordance with 35 Ill. Adm. Code 740.445 and the TACO review document previous sent to LHT.

Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35 day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

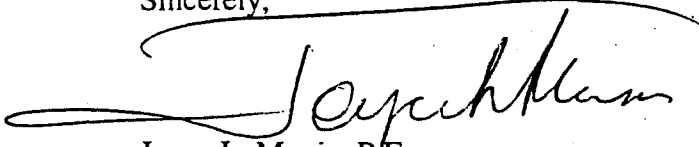
Work required by this letter, your modification request or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work

Mr. Stephen S. Penley
Log No. C-544-M-19
Page 3

that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions regarding this letter, please contact Karen Nachtwey at (217) 524-3273. For questions regarding groundwater requirements please contact Paula Stine at (217) 524-3861.

Sincerely,



Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

~~JLM:JKM:KEN~~
JKM
JLM:JKM:KEN:bjh\2414S.WPD

- Attachment 1 - Heat Treating Building Conditions
- Attachment 2 - Gantry and Salt Building Conditions
- Attachment 3 - TACO Equation R26 Calculation for the HTB Shallow GROs
- Attachment 4 - TACO Equation R26 Calculation for the HTB Intermediate GROs
- Attachment 5 - TACO Equation R26 Calculations for the GSB GROs
- Attachment 6 - Heat Treating Building Soil Concentration Contour Map
- Attachment 7 - Gantry Building and Salt Building Soil Concentration Contour Map
- Attachment 8 - Facility Site Lay-out

cc: Mabbett & Associates, Inc. - David A. Carlson, LEP, LSP✓

ATTACHMENT 1

HEAT TREATING BUILDING CONDITIONS

1. 35 Ill. Adm. Code 742.805(a)(3) and 35 Ill. Adm. Code 742.810(a) specifically requires the use of Equation R26 in calculating Tier 2 Groundwater Remediation Objectives (GROs), yet it appears that the facility used TACO Equation R15 multiplied by the Source concentration (C_{source}) as a variation to TACO Equation R26 in their Tier 2 Groundwater Evaluation. However, the Illinois EPA conducted an independent Tier 2 Groundwater Evaluation. Attachment 3 provides the calculations for the shallow GROs and Attachment 4 for the intermediate GROs.

2. The Tier 2 GROs for the Heat Treating Building are as follows:

	<u>Shallow</u>	<u>Intermediate</u>
1,1-dichloroethylene	0.120 mg/L	0.190 mg/L
cis-1,2-dichloroethylene	480.0 mg/L	240.0 mg/L
trans-1,2-dichloroethylene	0.800 mg/L	0.110 mg/L
tetrachloroethene	68.00 mg/L	200.0 mg/L
trichloroethylene	1100. mg/L	1100. mg/L
vinyl chloride	7.200 mg/L	0.160 mg/L

These remediation objectives are based upon the highest detected concentrations of the above listed parameters. The facility proposed to utilize the maximum calculated source concentrations for each of the above listed parameters, however, the purpose and intent of the TACO regulations is to develop risk-based remediation objectives based on site specific data. The maximum calculated source concentration values were based upon a hypothetical situation and a mathematical equation, but have not been detected at the facility and therefore cannot be approved.

3. Approval of the above Tier 2 GROs is contingent upon the implementation of institutional controls at the facility. Pursuant to 35 Ill. Adm. Code 742.1000 (Subpart J), institutional controls must be used when the subject property is determined to be Industrial/Commercial and when the point of human exposure is located at a place other than the source. The Melrose Park Ordinance No. 321 may be used as an environmental institutional control under 35 Ill. Adm. Code 742 provided a certified copy is submitted to the Illinois EPA and the city has entered a Memorandum of Understanding (MOU) with the State. However, a copy of the Melrose Park ordinance was not submitted with a certification from an official of Melrose Park as required by 35 Ill. Adm. Code 742.1015(b)(1). Requirements of 35 Ill. Adm. Code 742.1015(I) shall be met prior to the ordinance being used as an environmental institutional control. Use of any ordinance must be approved by the Illinois EPA's Division of Legal Counsel (DLC).

Until such time as the use of an institutional control is approved by the Illinois EPA, the groundwater clean-up objectives are the Class II Groundwater Quality Standards (to a

depth of 34 feet), as listed in 35 Ill. Adm. Code 620.420.

4. The Illinois EPA requires the following be met regarding the groundwater contamination at the Heat Treating Building:
 - a. Prior to the use of Tier 2 GROs in Condition 2 above, source removal of dense nonaqueous phase liquid from groundwater at M&A-113 and light nonaqueous phase liquid at M&A-114 shall continue until all product is removed to the extent practicable; and
 - b. Semi-annual sampling, analysis and reporting of groundwater conditions at M&A-5, M&A-103, M&A-104, M&A-105, M&A-111, M&A-113, M&A-114, M&A-115, M&A-119, M&A-121, M&A-122 and M&A-126 should continue until final remediation of the unit has been achieved. In addition, the following shallow wells should be included in this monitoring and reporting program due to the presence of vinyl chloride in excess of 35 Ill. Adm. Code 742 Tier 1 levels: M&A-112, M&A-116, M&A-120, M&A-2 and M&A-107.
 - c. Any sampling results that exceed the GROs for the parameters listed above in Condition 2, must be remediated.
5. Samples must be collected in accordance with the procedures listed in the document, Test Methods For Evaluating Solid Waste Physical/Chemical Methods (SW-846) Third Edition, dated December 1996, pursuant to 35 Ill. Adm. Code 620.510(b).
6. The information required by Condition 3 above should be submitted to the Illinois EPA for our review within forty-five (45) days of the date of this letter.
7. Pursuant to 35 Ill. Adm. Code 740.450, the facility must submit a Remediation Action Plan (RAP), which outlines the proposed remedial action to be taken at the site to achieve the conditionally approved TACO GROs. The RAP must also include an evaluation of the effectiveness of the proposed remedial action, as well as an evaluation of the ability for the facility to achieve the GROs.
8. The information required by Condition 7 above shall be submitted to the Illinois EPA for our review by July 17, 2000.
9. The Illinois EPA has determined that the soil ROs proposed for VOCs at the

HTB are acceptable provided: (1) an engineered barrier and associated institutional control are established over soil contamination in the Heat Treating Building extending to the 0 mg/kg contour line as shown in Attachment 6 - Heat Treating Building TCE Soil Concentration Contour Map; and (2) an institutional control is established to restrict groundwater usage on the LHT property.

ATTACHMENT 2
GANTRY AND SALT BUILDING

1. 35 Ill. Adm. Code 742.805(a)(3) and 35 Ill. Adm. Code 742.810(a) specifically require the use of Equation R26 in calculating Tier 2 Groundwater Remediation Objectives (GROs), yet it appears that the facility used TACO Equation R15 multiplied by the Source Concentration (C_{source}) as a variation to TACO Equation R26 in their Tier 2 Groundwater Evaluation. However, the Illinois EPA has conducted an independent Tier 2 Groundwater Evaluation provided in Attachment 5 to this letter.

2. The Tier 2 GROs for the Gantry and Salt Buildings are as follows:

Tetrachloroethene	45.00 mg/L	Chloroform	.0123 mg/L
Trichloroethylene	0.039 mg/L	Vinyl Chloride	0.880 mg/L
Cis-1,2-dichloroethene	2.500 mg/L	Trichloroethene*	0.029 mg/L

*Deep aquifer remedial objectives. All others are shallow remedial objectives.

These remediation objectives are based upon the highest detected concentrations of the above listed parameters. The facility proposed to utilize the maximum calculated source concentrations for each of the above listed parameters, however, the purpose and intent of the TACO regulations is to develop risk-based remediation objectives based on site specific data. The maximum calculated source concentration values were based upon a hypothetical situation and a mathematical equation, but have not been detected at the facility and therefore cannot be approved.

3. In addition to Condition 1 above, the Illinois EPA conducted an independent Tier 2 Groundwater Evaluation for Cyanide. The Illinois EPA has determined the Tier 2 GRO to be 0.685 mg/L. Any sampling results that exceed the GRO for Cyanide must be remediated.
4. Samples must be collected in accordance with the procedures listed in the document, Test Methods For Evaluating Solid Waste Physical/Chemical Methods (SW-846) Third Edition, dated December 1996, pursuant to 35 Ill. Adm. Code 620.510(b).
5. Semi-annual groundwater monitoring shall continue at the Gantry and Salt Buildings in accordance with the requirements of previous Illinois EPA approved plans/specifications and 35 Ill. Adm. Code 740.
6. Approval of the above Tier 2 GROs is contingent upon the implementation of institutional controls at the facility. Pursuant to 35 Ill. Adm. Code 742.1000 (Subpart J), institutional controls must be used when the subject property is determined to be Industrial/Commercial and when the point of human exposure is located at a place other than the source. The Melrose Park Ordinance No. 321 may be used as an environmental

institutional control under 35 Ill. Adm. Code 742 provided a certified copy is submitted to the Illinois EPA and the city has entered into a Memorandum of Understanding (MOU) with the State. However, a copy of the Melrose Park ordinance was not submitted with a certification from an official of Melrose Park as required by 35 Ill. Adm. Code 742.1015(b)(1). Requirements of 35 Ill. Adm. Code 742.1015(I) shall be met prior to the ordinance being used as an environmental institutional control. Use of any ordinance must be approved by the Illinois EPA's Division of Legal Counsel (DLC).

Until such time as the use of an institutional control is approved by the Illinois EPA, the groundwater clean-up objectives are the Class II Groundwater Quality Standards (to a depth of 34 feet), as listed in 35 Ill. Adm. Code Part 620.420.

7. Pursuant to 35 Ill. Adm. Code 740.450, the facility must submit a Remediation Action Plan (RAP), which outlines the proposed remedial action to be taken at the site to achieve the conditionally approved TACO GROs. The RAP must also include an evaluation of the effectiveness of the proposed remedial action, as well as an evaluation of the ability for the facility to achieve the GROs.
8. The Illinois EPA has determined that the ROs calculated for VOCs in soil are acceptable for the GB/SB provided: (1) an engineered barrier and associated institutional control are established over soil contamination in the GB/SB and extends to the 0 mg/kg contour line as shown in Attachment 7 - GB/SB TCE Soil Concentration Contour Map; and (2) an institutional control is established to restrict groundwater usage on the LHT property over a portion of this area. The Remediation Action Plan must address establishment of such an engineered barrier.
9. The information required by Condition 7 and 8 above should be submitted to the Illinois EPA for our review by July 17, 2000.

ATTACHMENT 3
HEAT TREATING BUILDING
TACO EQUATION R26 CALCULATIONS
SHALLOW GROs

Lindberg Heat Treating Building (shallow)

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, SITE INFO AND ALL VALUES IN BLUE.

Chemical Name	1,1-dichloroethylene
Compliance Concentration at Distance X from Source (Cx)	0.035 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.0053 day-1
Source Width (Sw)	2440 cm
Source Depth (Sd)	180 cm
Hydraulic Conductivity (K)	0.02 cm/day
Hydraulic Gradient (i)	0.03 cm/cm
Porosity (n)	0.4
Darcy Velocity (U)	1.50E-03 cm/day

Concentration (Cs) Which Can be Left in Groundwater at the Source Area:	7.82E+198 mg/L
	***** mg/L

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, AND ALL VALUES IN BLUE.

Chemical Name	1,1-dichloroethylene
Concentration at Source (Cs)	0.12 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.0053 day-1
Source Width (Sw)	2440 cm
Source Depth (Sd)	180 cm
Hydraulic Conductivity (K)	0.02 cm/day
Hydraulic Gradient (i)	0.03 cm/cm
Porosity (n)	0.4
Darcy Velocity (U)	1.50E-03 cm/day

Concentration (Cx) in Groundwater at the Downgradient Compliance Point:	5.37E-202 mg/L
	0.000000 mg/L

Lindberg Heat Treating Building (shallow)

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, SITE INFO AND ALL VALUES IN BLUE.

Chemical Name	cis-1,2-dichloroethylene
Compliance Concentration at Distance X from Source (Cx)	0.2 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00024 day-1
Source Width (Sw)	2440 cm
Source Depth (Sd)	180 cm
Hydraulic Conductivity (K)	0.02 cm/day
Hydraulic Gradient (i)	0.03 cm/cm
Porosity (n)	0.4
Darcy Velocity (U)	1.50E-03 cm/day

Concentration (Cs) Which Can be Left in Groundwater at the Source Area:	9.43E+40 mg/L
	***** mg/L

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, AND ALL VALUES IN BLUE.

Chemical Name	cis-1,2-dichloroethylene
Concentration at Source (Cs)	480 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00024 day-1
Source Width (Sw)	2440 cm
Source Depth (Sd)	180 cm
Hydraulic Conductivity (K)	0.02 cm/day
Hydraulic Gradient (i)	0.03 cm/cm
Porosity (n)	0.4
Darcy Velocity (U)	1.50E-03 cm/day

Concentration (Cx) in Groundwater at the Downgradient Compliance Point:	1.02E-39 mg/L
	0.000000 mg/L

Lindberg Heat Treating Building (shallow)

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, SITE INFO AND ALL VALUES IN BLUE.

Chemical Name	trans-1,2-dichloroethylene
Compliance Concentration at Distance X from Source (Cx)	0.5 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00024 day-1
Source Width (Sw)	2440 cm
Source Depth (Sd)	180 cm
Hydraulic Conductivity (K)	0.02 cm/day
Hydraulic Gradient (i)	0.03 cm/cm
Porosity (n)	0.4
Darcy Velocity (U)	1.50E-03 cm/day

Concentration (Cs) Which Can be Left in Groundwater at the Source Area:

2.36E+41 mg/L
***** mg/L

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, AND ALL VALUES IN BLUE.

Chemical Name	trans-1,2-dichloroethylene
Concentration at Source (Cs)	0.8 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00024 day-1
Source Width (Sw)	2440 cm
Source Depth (Sd)	180 cm
Hydraulic Conductivity (K)	0.02 cm/day
Hydraulic Gradient (i)	0.03 cm/cm
Porosity (n)	0.4
Darcy Velocity (U)	1.50E-03 cm/day

Concentration (Cx) in Groundwater at the Downgradient Compliance Point:

1.70E-42 mg/L
0.000000 mg/L

Lindberg Heat Treating Building (shallow)

7 d Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, SITE INFO AND ALL VALUES IN BLUE.

Chemical Name	tetrachloroethylene
Compliance Concentration at Distance X from Source (Cx)	0.025 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00096 day-1
Source Width (Sw)	2440 cm
Source Depth (Sd)	180 cm
Hydraulic Conductivity (K)	0.02 cm/day
Hydraulic Gradient (i)	0.03 cm/cm
Porosity (n)	0.4
Darcy Velocity (U)	1.50E-03 cm/day
Concentration (Cs) Which Can be Left in Groundwater at the Source Area:	8.90E+82 mg/L
	***** mg/L

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, AND ALL VALUES IN BLUE.

Chemical Name	tetrachloroethylene
Concentration at Source (Cs)	68 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00096 day-1
Source Width (Sw)	2440 cm
Source Depth (Sd)	180 cm
Hydraulic Conductivity (K)	0.02 cm/day
Hydraulic Gradient (i)	0.03 cm/cm
Porosity (n)	0.4
Darcy Velocity (U)	1.50E-03 cm/day
Concentration (Cx) in Groundwater at the Downgradient Compliance Point:	1.91E-83 mg/L
	0.000000 mg/L

Lindberg Heat Treating Building (shallow)

Tiered Approach to Cleanup Objectives

24-Feb-2000

ENTER THE CHEMICAL NAME, SITE INFO AND ALL VALUES IN BLUE.

Chemical Name	trichloroethylene
Compliance Concentration at Distance X from Source (Cx)	0.025 mg/L
Distance to Receptor (X)	6100 cm
X	610.00 cm
Y	203.33 cm
Z	30.50 cm
Biodegradation Coefficient (I)	0.00042 day-1
Source Width (Sw)	2440 cm
Source Depth (Sd)	180 cm
Hydraulic Conductivity (K)	0.02 cm/day
Hydraulic Gradient (i)	0.03 cm/cm
Porosity (n)	0.4
Darcy Velocity (U)	1.50E-03 cm/day

Concentration (Cs) Which Can be Left in Groundwater at the Source Area: 8.15E+53 mg/L
***** mg/L

Tiered Approach to Cleanup Objectives

24-Feb-2000

ENTER THE CHEMICAL NAME, AND ALL VALUES IN BLUE.

Solubility = 1100 mg/L

Chemical Name	trichloroethylene
Concentration at Source (Cs)	12000 mg/L
Distance to Receptor (X)	6100 cm
X	610.00 cm
Y	203.33 cm
Z	30.50 cm
Biodegradation Coefficient (I)	0.00042 day-1
Source Width (Sw)	2440 cm
Source Depth (Sd)	180 cm
Hydraulic Conductivity (K)	0.02 cm/day
Hydraulic Gradient (i)	0.03 cm/cm
Porosity (n)	0.4
Darcy Velocity (U)	1.50E-03 cm/day

Concentration (Cx) in Groundwater at the Downgradient Compliance Point: 3.68E-52 mg/L
0.000000 mg/L

Lindberg Heat Treating Building (shallow)

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, SITE INFO AND ALL VALUES IN BLUE.

Chemical Name	vinyl chloride
Compliance Concentration at Distance X from Source (Cx)	0.01 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00024 day-1
Source Width (Sw)	2440 cm
Source Depth (Sd)	180 cm
Hydraulic Conductivity (K)	0.02 cm/day
Hydraulic Gradient (i)	0.03 cm/cm
Porosity (n)	0.4
Darcy Velocity (U)	1.50E-03 cm/day
Concentration (Cs) Which Can be Left in Groundwater at the Source Area:	4.72E+39 mg/L
	***** mg/L

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, AND ALL VALUES IN BLUE.

Chemical Name	vinyl chloride
Concentration at Source (Cs)	7.2 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00024 day-1
Source Width (Sw)	2440 cm
Source Depth (Sd)	180 cm
Hydraulic Conductivity (K)	0.02 cm/day
Hydraulic Gradient (i)	0.03 cm/cm
Porosity (n)	0.4
Darcy Velocity (U)	1.50E-03 cm/day
Concentration (Cx) in Groundwater at the Downgradient Compliance Point:	1.53E-41 mg/L
	0.000000 mg/L

ATTACHMENT 4
HEAT TREATING BUILDING
TACO EQUATION R26 CALCULATIONS
INTERMEDIATE GROs

Lindberg Heat Treating Building (intermediate)

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, SITE INFO AND ALL VALUES IN BLUE.

Chemical Name	1,1-dichloroethylene
Compliance Concentration at Distance X from Source (Cx)	0.035 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.0053 day-1
Source Width (Sw)	2042 cm
Source Depth (Sd)	100 cm
Hydraulic Conductivity (K)	0.36 cm/day
Hydraulic Gradient (i)	0.009 cm/cm
Porosity (n)	0.42
Darcy Velocity (U)	7.71E-03 cm/day

Concentration (Cs) Which Can be Left in Groundwater at the Source Area:	3.22E+86 mg/L
	***** mg/L

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, AND ALL VALUES IN BLUE.

Chemical Name	1,1-dichloroethylene
Concentration at Source (Cs)	0.19 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.0053 day-1
Source Width (Sw)	2042 cm
Source Depth (Sd)	100 cm
Hydraulic Conductivity (K)	0.36 cm/day
Hydraulic Gradient (i)	0.009 cm/cm
Porosity (n)	0.42
Darcy Velocity (U)	7.71E-03 cm/day

Concentration (Cx) in Groundwater at the Downgradient Compliance Point:	2.06E-89 mg/L
	0.000000 mg/L

Lindberg Heat Treating Building (intermediate)

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, SITE INFO AND ALL VALUES IN BLUE.

Chemical Name	cis-1,2-dichloroethylene
Compliance Concentration at Distance X from Source (Cx)	0.2 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00024 day-1
Source Width (Sw)	2042 cm
Source Depth (Sd)	100 cm
Hydraulic Conductivity (K)	0.36 cm/day
Hydraulic Gradient (i)	0.009 cm/cm
Porosity (n)	0.42
Darcy Velocity (U)	7.71E-03 cm/day

Concentration (Cs) Which Can be Left in Groundwater at the Source Area: 2.37E+17 mg/L

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, AND ALL VALUES IN BLUE.

Chemical Name	cis-1,2-dichloroethylene
Concentration at Source (Cs)	240 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00024 day-1
Source Width (Sw)	2042 cm
Source Depth (Sd)	100 cm
Hydraulic Conductivity (K)	0.36 cm/day
Hydraulic Gradient (i)	0.009 cm/cm
Porosity (n)	0.42
Darcy Velocity (U)	7.71E-03 cm/day

Concentration (Cx) in Groundwater at the Downgradient Compliance Point: 2.03E-16 mg/L

0.000000 mg/L

Lindberg Heat Treating Building (intermediate)

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, SITE INFO AND ALL VALUES IN BLUE.

Chemical Name	trans-1,2-dichloroethylene
Compliance Concentration at Distance X from Source (Cx)	0.5 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00024 day-1
Source Width (Sw)	2042 cm
Source Depth (Sd)	100 cm
Hydraulic Conductivity (K)	0.36 cm/day
Hydraulic Gradient (i)	0.009 cm/cm
Porosity (n)	0.42
Darcy Velocity (U)	7.71E-03 cm/day

Concentration (Cs) Which Can be Left in Groundwater at the Source Area: 5.92E+17 mg/L
***** mg/L

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, AND ALL VALUES IN BLUE.

Chemical Name	trans-1,2-dichloroethylene
Concentration at Source (Cs)	0.11 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00024 day-1
Source Width (Sw)	2042 cm
Source Depth (Sd)	100 cm
Hydraulic Conductivity (K)	0.36 cm/day
Hydraulic Gradient (i)	0.009 cm/cm
Porosity (n)	0.42
Darcy Velocity (U)	7.71E-03 cm/day

Concentration (Cx) in Groundwater at the Downgradient Compliance Point: 9.29E-20 mg/L
0.000000 mg/L

Lindberg Heat Treating Building (intermediate)

Tiered Approach to Cleanup Objectives

24-Feb-2000

ENTER THE CHEMICAL NAME, SITE INFO AND ALL VALUES IN BLUE.

Chemical Name	tetrachloroethylene
Compliance Concentration at Distance X from Source (Cx)	0.025 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00096 day-1
Source Width (Sw)	2042 cm
Source Depth (Sd)	100 cm
Hydraulic Conductivity (K)	0.36 cm/day
Hydraulic Gradient (i)	0.009 cm/cm
Porosity (n)	0.42
Darcy Velocity (U)	7.71E-03 cm/day
Concentration (Cs) Which Can be Left in Groundwater at the Source Area:	2.13E+35 mg/L
	***** mg/L

Tiered Approach to Cleanup Objectives

24-Feb-2000

ENTER THE CHEMICAL NAME, AND ALL VALUES IN BLUE.

Solubility = 200 mg/L

Chemical Name	tetrachloroethylene
Concentration at Source (Cs)	9400 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00096 day-1
Source Width (Sw)	2042 cm
Source Depth (Sd)	100 cm
Hydraulic Conductivity (K)	0.36 cm/day
Hydraulic Gradient (i)	0.009 cm/cm
Porosity (n)	0.42
Darcy Velocity (U)	7.71E-03 cm/day
Concentration (Cx) in Groundwater at the Downgradient Compliance Point:	1.10E-33 mg/L
	0.000000 mg/L

erg Heat Treating Building (intermediate)

Tiered Approach to Cleanup Objectives

24-Feb-2000

ENTER THE CHEMICAL NAME, SITE INFO AND ALL VALUES IN BLUE.

Chemical Name	trichloroethylene
Compliance Concentration at Distance X from Source (Cx)	0.025 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00042 day-1
Source Width (Sw)	2042 cm
Source Depth (Sd)	100 cm
Hydraulic Conductivity (K)	0.36 cm/day
Hydraulic Gradient (i)	0.009 cm/cm
Porosity (n)	0.42
Darcy Velocity (U)	7.71E-03 cm/day
Concentration (Cs) Which Can be Left in Groundwater at the Source Area:	3.55E+22 mg/L
 mg/L

Tiered Approach to Cleanup Objectives

24-Feb-2000

ENTER THE CHEMICAL NAME, AND ALL VALUES IN BLUE.

Solubility = 1100 mg/L

Chemical Name	trichloroethylene
Concentration at Source (Cs)	380000 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00042 day-1
Source Width (Sw)	2042 cm
Source Depth (Sd)	100 cm
Hydraulic Conductivity (K)	0.36 cm/day
Hydraulic Gradient (i)	0.009 cm/cm
Porosity (n)	0.42
Darcy Velocity (U)	7.71E-03 cm/day
Concentration (Cx) in Groundwater at the Downgradient Compliance Point:	2.68E-19 mg/L
	0.000000 mg/L

Lindberg Heat Treating Building (intermediate)

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, SITE INFO AND ALL VALUES IN BLUE.

Chemical Name	vinyl chloride
Compliance Concentration at Distance X from Source (Cx)	0.01 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00024 day-1
Source Width (Sw)	2042 cm
Source Depth (Sd)	100 cm
Hydraulic Conductivity (K)	0.36 cm/day
Hydraulic Gradient (i)	0.009 cm/cm
Porosity (n)	0.42
Darcy Velocity (U)	7.71E-03 cm/day

Concentration (Cs) Which Can be Left in Groundwater at the Source Area: 1.18E+16 mg/L
***** mg/L

Tiered Approach to Cleanup Objectives

22-Feb-2000

ENTER THE CHEMICAL NAME, AND ALL VALUES IN BLUE.

Chemical Name	vinyl chloride
Concentration at Source (Cs)	0.16 mg/L
Distance to Receptor (X)	6100 cm
Ax	610.00 cm
Ay	203.33 cm
Az	30.50 cm
Biodegradation Coefficient (I)	0.00024 day-1
Source Width (Sw)	2042 cm
Source Depth (Sd)	100 cm
Hydraulic Conductivity (K)	0.36 cm/day
Hydraulic Gradient (i)	0.009 cm/cm
Porosity (n)	0.42
Darcy Velocity (U)	7.71E-03 cm/day

Concentration (Cx) in Groundwater at the Downgradient Compliance Point: 1.35E-19 mg/L
0.000000 mg/L

APPENDIX B
COPIES OF MELROSE PARK ORDINANCES
NOs. 321 AND 509

STATE OF ILLINOIS)
) SS
COUNTY OF COOK)

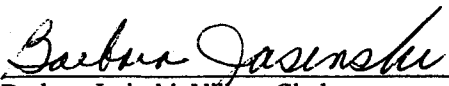
CERTIFICATION OF ORDINANCE #321

I, Barbara Jasinski, the undersigned, do hereby certify that I am duly elected and qualified Village Clerk of the Village of Melrose Park, County of Cook, State of Illinois (the "Village"), and as such official I am the keeper of the records and files of the Village and of the President and Board of Trustees thereof (the "Village Board").

I do further certify that Ordinance #321 was adopted by the President and Board of Trustees of the Village of Melrose Park at a public meeting of the Village Board held November 24, 1997, at the hour of 7:30 p.m., in the First Floor meeting Room of the Police Department, One North Broadway Avenue (Broadway & Main Street), Melrose Park, Illinois 60160.

IN WITNESS WHEREOF, I hereunto affix my official signature and the seal of the Village, this 15th day of June 2000.




Barbara Jasinski, Village Clerk

=====

**VILLAGE OF MELROSE PARK
COOK COUNTY, ILLINOIS**

ORDINANCE NO. 321

**AN ORDINANCE PROHIBITING THE USE OF
GROUNDWATER AS A POTABLE WATER SUPPLY
BY THE INSTALLATION OR USE OF POTABLE WATER
SUPPLY WELLS OR BY ANY OTHER METHOD, FOR THE
VILLAGE OF MELROSE PARK, COUNTY OF COOK,
STATE OF ILLINOIS.**

**ADOPTED BY THE
PRESIDENT AND BOARD OF TRUSTEES
OF THE
VILLAGE OF MELROSE PARK**

THIS 24TH DAY OF NOVEMBER, 1997

**RONALD M. SERPICO, Village President
BARBARA JASINSKI, Village Clerk**

Board Of Trustees

**CARLOTTA "LOLLIE" ARIOLA
JOHN S. CONTEDECA
CATHLEEN ITALIA
FRED LAMB
RUBEN LOMELI
JOSEPH McMILLAN**

=====

**Published by authority of the
President and Board of Trustees
Of the Village of Melrose Park,
Cook County, Illinois on
This 24TH day of November, 1997.**

ORDINANCE NO. 321

**AN ORDINANCE PROHIBITING THE USE OF
GROUNDWATER AS A POTABLE WATER SUPPLY
BY THE INSTALLATION OR USE OF POTABLE WATER
SUPPLY WELLS OR BY ANY OTHER METHOD, FOR THE
VILLAGE OF MELROSE PARK, COUNTY OF COOK, STATE OF
ILLINOIS .**

* * * * *

Article I. In General, Sections 01-09

- Section 01. Incorporation Clause.
- Section 02. Purpose.
- Section 03. Invocation of Authority.
- Section 04. State Law Adopted.
- Section 05-09. Reserved.

Article II. Ground Water As A Potable Water Supply.

- Section 10. Use of Groundwater As a Potable Water Supply Prohibited.
- Section 11. Exception(s).
- Section 12. Penalties.
- Section 13. Definitions.

Article III. Savings Clauses, Publication, Effective Date.

- Section 14. Headings.
- Section 15. Severability.
- Section 16. Superseder.
- Section 17. Publication.
- Section 18. Effective Date.

ORDINANCE NO. 321

**AN ORDINANCE PROHIBITING THE USE OF
GROUNDWATER AS A POTABLE WATER SUPPLY
BY THE INSTALLATION OR USE OF POTABLE WATER
SUPPLY WELLS OR BY ANY OTHER METHOD, FOR THE
VILLAGE OF MELROSE PARK, COUNTY OF COOK, STATE OF
ILLINOIS .**

* * * * *

WHEREAS, the Village of Melrose Park, Cook County, State of Illinois (the "Village") is a duly organized and existing Village created under the provisions of the laws of the State of Illinois, and is now operating under the provisions of the Illinois Municipal Code, and all laws amendatory thereof and supplementary thereto with full powers to enact ordinances for the benefit of the residents of the Village.

WHEREAS, The President and the Board of Trustees (the "Corporate Authorities") of the Village of Melrose Park, County of Cook, State of Illinois, have determined that it is advisable, necessary and in the best interest of the Village to prohibit the use of groundwater as a potable water supply by the installation or use of potable water supply wells or by any other method.

NOW THEREFORE, BE IT ORDAINED by the Village President and the Board of Trustees of the Village of Melrose Park, Cook County Illinois:

**ARTICLE I.
IN GENERAL**

Section 01. Incorporation Clause.

The parties agree that the above information, contained in the preamble, is hereby incorporated into this ordinance by reference.

Section 02. Purpose.

The purpose of this ordinance is to prohibit the use of groundwater as a potable water supply by the installation or use of potable water supply wells or by any other method.

Section 03. Invocation of authority.

This ordinance is enacted pursuant to the authority granted to this Village by Constitution of the State of Illinois and the Illinois Compiled Statutes.

Section 04. State Law Adopted.

All applicable provisions of the Illinois Compiled Statutes, including the Illinois Municipal Code, as may be amended from time to time, relating to the purposes of this ordinance are hereby incorporated herein by reference.

Sections 05-09. Reserved.

**ARTICLE II.
GROUND WATER AS A POTABLE WATER SUPPLY**

Section 10. Use of Groundwater as a Potable Water Supply Prohibited.

The use or attempt to use as a potable water supply groundwater from within the corporate limits of the Village of Melrose Park by the installation or drilling of wells or by any other method is hereby prohibited.

Section 11. Exception(s).

After a determination by the Village President, the Village of Melrose Park may use as a potable water supply groundwater from within the corporate limits of the Village of Melrose Park by the installation or drilling of wells or by any other method. This exception only applies for uses that are determined, by the Village President, to be in the best interest of the citizens of the Village of Melrose Park.

Section 12. Penalties.

Any person violating the provisions of this ordinance shall be subject to a fine of up to \$ 1,000.00, for each violation.

Section 13. Definitions.

"Person" is any individual, partnership, co-partnership, firm, company, limited liability company, corporation, association, joint stock company, trust, estate, or any other legal entity, or their legal representatives, agents or assigns.

"Potable water" is any water used for human or domestic consumption, including, but not limited to, water used for drinking, bathing, washing dishes, or preparing foods.

**ARTICLE III.
SAVINGS CLAUSES,
PUBLICATION, EFFECTIVE DATE**

Section 14. Headings.

The headings for the articles, sections, paragraphs and sub-paragraphs of this ordinance are inserted solely for the convenience of reference and form no substantive part of this ordinance nor should they be used in any interpretation or construction of any substantive provisions of this ordinance.

Section 15. Severability.

The provisions of this ordinance are hereby declared to be severable and should any provision, clause, sentence, paragraph, sub-paragraph, section, or part of this ordinance be determined to be in conflict with any law, statute or regulation by a court of competent jurisdiction, said provision shall be excluded and deemed inoperative,

unenforceable, and as though not provided for herein, and all other provisions shall remain unaffected, unimpaired, valid and in full force and effect. It is hereby declared to be the legislative intent of the Board of Trustees that this ordinance would have been adopted had not such unconstitutional or invalid provision, clause, sentence, paragraph, sub-paragraph, section, or part thereof had not been included.

Section 16. Superseder.

All code provisions, ordinances, resolutions and orders, or parts thereof, in conflict herewith, are to the extent of such conflict hereby superseded.

Section 17. Publication.

A full, true and complete copy of this ordinance shall be published in pamphlet form or in a newspaper published and of general circulation within the Village as provided by the Illinois Municipal Code, as amended.

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

Section 18. Effective date

This ordinance shall be in full force and effect upon passage, approval and ten (10) days after the publication hereof, as provided by law.

On The Individual Poll And Voice Vote Of The Board Of Trustees:

AYE VOTES: 5

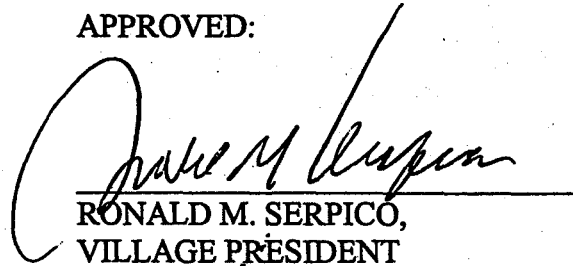
NAY VOTES: 0

ABSTAIN: 0

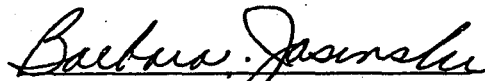
ABSENT: 1

SO PASSED, ADOPTED, APPROVED AND ENACTED IN AND AT THE
VILLAGE OF MELROSE PARK, COUNTY OF COOK, STATE OF ILLINOIS, THIS
24th DAY OF NOVEMBER, 1997 A.D.

APPROVED:


RONALD M. SERPICO,
VILLAGE PRESIDENT

ATTEST:


BARBARA JASINSKI,
VILLAGE CLERK



Recorded in the Municipal Records: November 24, 1997

Published in pamphlet form on November 25, 1997

STATE OF ILLINOIS)
) SS
COUNTY OF COOK)

CERTIFICATION OF ORDINANCE #509

I, Barbara Jasinski, the undersigned, do hereby certify that I am duly elected and qualified Village Clerk of the Village of Melrose Park, County of Cook, State of Illinois (the "Village"), and as such official I am the keeper of the records and files of the Village and of the President and Board of Trustees thereof (the "Village Board").

I do further certify that Ordinance #509 was adopted by the President and Board of Trustees of the Village of Melrose Park at a public meeting of the Village Board held April 24, 2000, at the hour of 7:30 p.m., in the First Floor meeting Room of the Police Department, One North Broadway Avenue (Broadway & Main Street), Melrose Park, Illinois 60160.

IN WITNESS WHEREOF, I hereunto affix my official signature and the seal of the Village, this 15th day of June 2000.




Barbara Jasinski, Village Clerk

=====

**VILLAGE OF MELROSE PARK
COOK COUNTY, ILLINOIS**

ORDINANCE NO. 509

**AN ORDINANCE AUTHORIZING AND APPROVING THE
ADOPTION OF A MEMORANDUM OF UNDERSTANDING
BETWEEN THE VILLAGE OF MELROSE PARK AND THE
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY IN
CONNECTION WITH ESTABLISHING INSTITUTIONAL
CONTROLS FOR THE USE OF GROUND WATER AS A POTABLE
WATER SUPPLY IN THE VILLAGE OF MELROSE PARK,
COUNTY OF COOK, STATE OF ILLINOIS.**

**ADOPTED BY THE
PRESIDENT AND BOARD OF TRUSTEES
OF THE
VILLAGE OF MELROSE PARK**

THIS 24TH DAY OF APRIL, 2000

**RONALD M. SERPICO, Village President
BARBARA JASINSKI, Village Clerk**

Board Of Trustees

**CARLOTTA "LOLLIE" ARIOLA
JOHN S. CONTEDEUCA
CATHLEEN COSSIDENT ITALIA
THOMAS KLEIN
FRED LAMB
RUBEN LOMELI**

=====

**Published by authority of the
President and Board of Trustees
Of the Village of Melrose Park,
Cook County, Illinois on
This 25th day of April, 2000.**

ORDINANCE NO. 509

**AN ORDINANCE AUTHORIZING AND APPROVING THE
ADOPTION OF A MEMORANDUM OF UNDERSTANDING
BETWEEN THE VILLAGE OF MELROSE PARK AND THE
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY IN
CONNECTION WITH ESTABLISHING INSTITUTIONAL
CONTROLS FOR THE USE OF GROUND WATER AS A
POTABLE WATER SUPPLY IN THE VILLAGE OF MELROSE
PARK, COUNTY OF COOK, STATE OF ILLINOIS .**

* * * * *

WHEREAS, the Village of Melrose Park, Cook County, State of Illinois ("the Village") is a duly organized and existing Village created under the provisions of the laws of the State of Illinois, and is now operating under the provisions of the Illinois Municipal Code, and all laws amendatory thereof and supplementary thereto with full powers to enact ordinances for the benefit of the residents of the Village; and

WHEREAS, the Village President, the Honorable Ronald M. Serpico, the Village Clerk, the Honorable Barbara Jasinski, having taken office on May 1, 1997 and the Village Board of Trustees, the Honorable Carlotta "Lollie" Ariola, John S. Conteduca, Cathleen Cossident Italia, Fred Lamb, and Ruben Lomeli, having taken office on May 1, 1999, and Trustee Thomas Klein, having been appointed and sworn into office on March 27, 2000, respectively, constitute the duly elected, appointed, qualified and acting officials of the Village; and

WHEREAS, at the President and Board of Trustees Meeting of November 24, 1997, the Corporate Authorities of the Village of Melrose Park adopted Ordinance No. 321, entitled "An Ordinance Prohibiting the Use of Groundwater as a Potable Water Supply by the Installation or Use of Potable Water Supply Wells or by any other Method..."; and

WHEREAS, the effect of Ordinance No. 321 was to prohibit the use of groundwater as a potable water supply within the Village of Melrose Park, with the only exception being that the Village of Melrose Park may utilize groundwater as a potable water supply should certain emergency circumstances arise; and

WHEREAS, in order to ensure the long-term integrity of Ordinance No. 321 as an environmental institutional control and to minimize any risk to human health and the environment from contamination, the Village of Melrose Park desires to enter into a Memorandum of Understanding (hereinafter "MOU") with the Illinois Environmental Protection Agency (hereinafter "IEPA"); and

WHEREAS, pursuant to said MOU, the Village shall assume certain responsibilities, pursuant to 35 Ill. Adm. Code 742.1015(i), with respect to monitoring and siting public water supply wells, the specific responsibilities of the Village are more particularly described in said MOU, a copy of which is attached hereto as Exhibit A; and

WHEREAS, the President and the Board of Trustees (the "Corporate Authorities") of the Village of Melrose Park, County of Cook, State of Illinois, have determined that the adoption of the Memorandum of Understanding between the Village and the Illinois Environmental Protection Agency is necessary, advisable and in the best interest of the Village and its residents;

NOW THEREFORE, BE IT ORDAINED by the Village President and the Board of Trustees of the Village of Melrose Park, Cook County, Illinois:

ARTICLE I. IN GENERAL

Section 01. Incorporation Clause.

The President and Board of Trustees of the Village (the "Village Board") hereby find that all of the recitals hereinbefore stated as contained in the preambles to this Ordinance are full, true and correct and does hereby, by reference, incorporate and make them part of the Ordinance as legislative findings.

Section 02. Purpose.

The purpose of this Ordinance is to authorize and approve the adoption and execution of a Memorandum of Understanding between the Village and the Illinois Environmental Protection Agency, regarding the use of Ordinance No. 321 as an environmental institutional control.

Section 03. Invocation of authority.

This ordinance is enacted pursuant to the authority granted to this Village by Constitution of the State of Illinois and the Illinois Compiled Statutes.

Section 04. State Law Adopted.

All applicable provisions of the Illinois Compiled Statutes, including the Illinois Municipal Code, as may be amended from time to time, relating to the purposes of this ordinance are hereby incorporated herein by reference.

Sections 05-09. Reserved.

ARTICLE II.
AUTHORIZATION OF MEMORANDUM OF UNDERSTANDING

Section 10.00 Approval & Adoption of Memorandum of Understanding.

That the terms and provisions of the Memorandum of Understanding between the Village and the Illinois Environmental Protection Agency, regarding the use of Ordinance No. 321 as an environmental institutional control, are hereby approved in substantially the same form as attached hereto as Exhibit A, with such insertions, omissions and changes as shall be approved by the Village President and the Village Attorney or other members of the governing body of the Village executing the same.

Section 11.00 Authorization for Execution of MOU.

The Village President is hereby authorized and directed to execute, and the Village Clerk, if necessary, is hereby authorized and directed to attest and countersign the Memorandum of Understanding and any related exhibits attached thereto, whether or not such documents are attached to this Ordinance, and the Village Clerk, if necessary, is also authorized to affix the seal of the Village to such documents.

Section 12.00 Other Actions Authorized.

The Village Clerk is hereby authorized and directed to prepare and certify the documents referenced in Section III of the MOU and the officers, employees and/or agents of the Village shall take all action necessary or reasonably required to carry out, give effect to and consummate the transactions contemplated by this Ordinance and to take all action necessary in conformity therewith, including, without limitation, the execution and delivery of any documents required to be delivered in connection with this Ordinance and the MOU.

**ARTICLE III.
SAVINGS CLAUSES,
PUBLICATION, EFFECTIVE DATE**

Section 13.00 Headings.

The headings for the articles, sections, paragraphs and sub-paragraphs of this Ordinance are inserted solely for the convenience of reference and form no substantive part of this Ordinance nor should they be used in any interpretation or construction of any substantive provisions of this Ordinance.

Section 14.00 Severability.

The provisions of this Ordinance are hereby declared to be severable and should any provision, clause, sentence, paragraph, sub-paragraph, section, or part of this Ordinance be determined to be in conflict with any law, statute or regulation by a court of competent jurisdiction, said provision shall be excluded and deemed inoperative, unenforceable, and as though not provided for herein, and all other provisions shall remain unaffected, unimpaired, valid and in full force and effect. It is hereby declared to be the legislative intent of the Board of Trustees that this Ordinance would have been adopted had not such unconstitutional or invalid provision, clause, sentence, paragraph, sub-paragraph, section, or part thereof had not been included.

Section 15.00 Superseder.

All code provisions, ordinances, resolutions and orders, or parts thereof, in conflict herewith, are to the extent of such conflict hereby superseded.

Section 16.00 Publication.

A full, true and complete copy of this Ordinance shall be published in pamphlet form or in a newspaper published and of general circulation within the Village as provided by the Illinois Municipal Code, as amended.

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

\ \ \

Section 17.00 Effective date

This Ordinance shall be in full force and effect upon passage and approval, as provided by the Illinois Municipal Code, as amended.

On The Individual Poll And Voice Vote Of The Board Of Trustees:

AYE VOTES: Trustee Ariola, Trustee Conteduca, Trustee Lamb,
Trustee Lomeli, Trustee Klein


NAY VOTES:

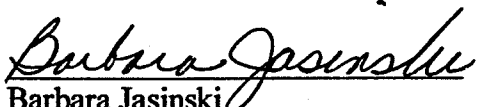
ABSTAIN:

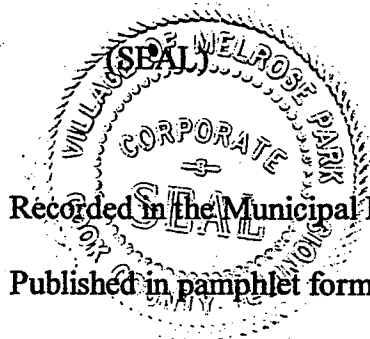
ABSENT: Trustee Italia

SO PASSED, ADOPTED, APPROVED AND ENACTED IN AND AT THE
VILLAGE OF MELROSE PARK, COUNTY OF COOK, STATE OF ILLINOIS, THIS
TWENTY-FOURTH DAY OF APRIL, 2000 A.D.

APPROVED:


RONALD M. SERPICO,
VILLAGE PRESIDENT

ATTEST: 
Barbara Jasinski
Village Clerk



Recorded in the Municipal Records: April 24, 2000

Published in pamphlet form: April 25, 2000

EXHIBIT A

**MEMORANDUM OF UNDERSTANDING BETWEEN THE
VILLAGE OF MELROSE PARK AND THE ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY REGARDING THE USE OF A LOCAL
GROUNDWATER/WATER WELL ORDINANCE AS AN
ENVIRONMENTAL INSTITUTIONAL CONTROL**

I. PURPOSE AND INTENT

- A. This Memorandum of Understanding (hereinafter "MOU") entered into by and between the Village of Melrose Park and the Illinois Environmental Protection Agency (hereinafter "Illinois EPA") is entered into for the purpose of satisfying the requirements of 35 Ill. Adm. Code 742.1015 for the use of groundwater or water well ordinances as environmental institutional controls. The Illinois EPA has reviewed the groundwater or water well ordinance of the Village of Melrose Park (a copy of which is attached hereto as "Exhibit A") and determined that the Ordinance prohibits the use of groundwater for potable purposes and the installation and use of new potable water supply wells by private entities but does not expressly prohibit those activities by the Village of Melrose Park itself. In such cases, 35 Ill. Adm. Code 742.1015(a) provides that the unit of local government may enter into an MOU with the Illinois EPA to allow the use of the Ordinance as an institutional control.
- B. The intent of this Memorandum of Understanding is to specify the responsibilities that must be assumed by the Village of Melrose Park to satisfy the requirements for MOUs as set forth at 35 Ill. Adm. Code 742.1015(i).

II. DECLARATIONS AND ASSUMPTION OF RESPONSIBILITY

In order to ensure the long-term integrity of the groundwater/water well ordinance as an environmental institutional control and that risk to human health and the environment from contamination left in place in reliance on the groundwater/water well ordinance is effectively managed; the Village of Melrose Park hereby assumes the following responsibilities pursuant to 35 Ill. Adm. Code 742.1015(i):

- A. The Village of Melrose Park will notify the Illinois EPA Bureau of Land of any proposed ordinance changes, in connection with its well ordinance or this MOU, and notify the Illinois EPA Bureau of Land of any requests for variance that would impact or otherwise affect the intent of the Village's well ordinance and/or this MOU, at least thirty (30) days prior to the date the Village of Melrose Park is scheduled to take action on the proposed change or request (35 Ill. Adm. Code 742.1015(i)(4));

- B. The Village of Melrose Park will maintain a registry of all sites within its Corporate Limits that have received "No Further Remediation" determinations from the Illinois EPA (35 Ill. Adm. Code 742.1015(i)(5)). In an effort to assist the Village of Melrose Park with maintaining said registry, the Illinois EPA shall forward to the Village of Melrose Park copies of any and all Illinois EPA letters, communications, or the like in which a "No Further Remediation" determination has been made by the Illinois EPA with respect to any real estate within the Corporate Limits of the Village of Melrose Park.
- C. The Village of Melrose Park will review the registry of sites established under paragraph II. B prior to siting public potable water supply wells within the Corporate Limits of the Village of Melrose Park (35 Ill. Adm. Code 742.1015(i)(6)(A));
- D. Prior to siting public potable water supply wells and/or using potable water from any such well, the Village of Melrose Park will determine whether the potential source of potable water has been or may be affected by contamination left in place at the sites tracked and reviewed under paragraphs II.B. and C (35 Ill. Adm. Code 742.1015(i)(6)(B)); and
- E. The Village of Melrose Park will take action as necessary to ensure that the potential source of potable water is protected from contamination or treated before it is used as a potable water supply (35 Ill. Adm. Code 742.1015(i)(6)(C)).

NOTE: Notification under paragraphs II A and II B above or other communications concerning this MOU should be directed to:

If to the Illinois EPA:

Manager, Division of Remediation Management
Bureau of Land
Illinois Environmental Protection Agency
P.O. Box 19276
Springfield, Illinois 62794-9276

If to the Village of Melrose Park:

Village Attorney
Village of Melrose Park
1000 N. 25th Avenue
Melrose Park, Illinois 60160

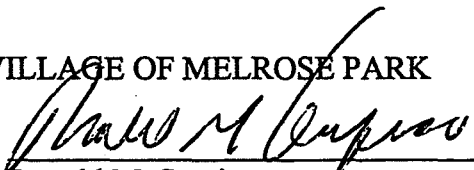
III. SUPPORTING DOCUMENTATION

The following documentation is required by 35 Ill. Adm. Code 742.1015(i) and is attached to this MOU:

- A. Attachment A: A copy of Village of Melrose Park Ordinance No. 321, entitled "An Ordinance Prohibiting the Use of Groundwater as a Potable Water Supply by the Installation or Use of Potable Water Supply Wells or by any Other Method, for the Village of Melrose Park, County of Cook, State of Illinois." A certificate of the Village Clerk is attached thereto certifying that said Ordinance, at the time of the adoption of this MOU, is a valid legislative enactment and is in full force and effect in the Village of Melrose Park. (35 Ill. Adm. Code 742.1015(i)(3));
- B. Attachment B: Certificate of the Village Clerk certifying that said Ordinance No. 321 is applicable everywhere within the Corporate Limits of the Village of Melrose Park (35 Ill. Adm. Code 742.1015(i)(2));
- C. Attachment C: A Certified Copy of Village of Melrose Park Ordinance No. _____, entitled "An Ordinance Authorizing and Approving the Adoption of a Memorandum of Understanding between the Village of Melrose Park and the Illinois Environmental Protection Agency In Connection with Establishing Institutional Controls for the Use of Ground Water as a Potable Water Supply in the Village of Melrose Park, County of Cook, State of Illinois."

IN WITNESS WHEREOF, the lawful representatives of the parties hereto have caused this MOU to be signed, in counterpart, as follows:

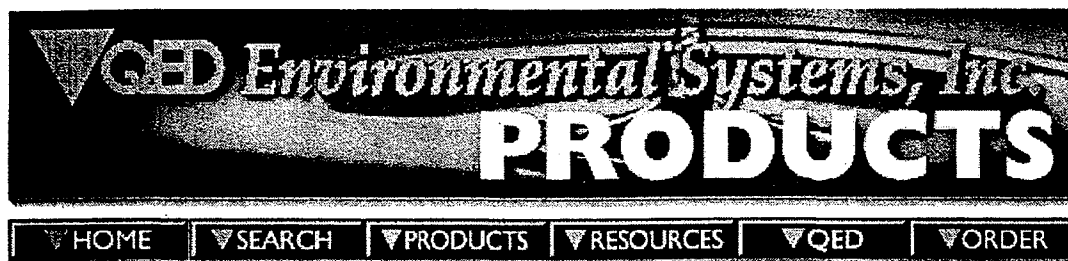
FOR: THE VILLAGE OF MELROSE PARK

BY:  DATE: 5/1-2000
Ronald M. Serpico
Village President

FOR: ILLINOIS ENVIRONMENTAL PROTECTION AGENCY:

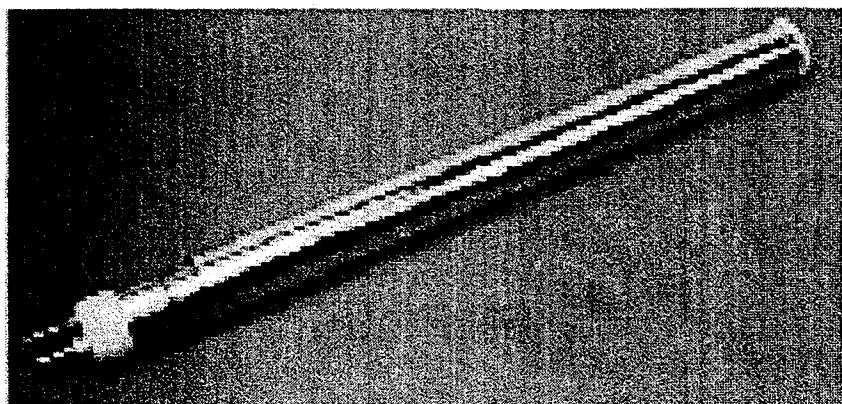
BY: _____ DATE: _____-2000
(Name and title of signatory)

APPENDIX C
MANUFACTURER SPECIFICATIONS



Eliminator Pumps for Challenging Cleanup Jobs and Clean Air Sites

PRODUCT SHEET
SPECIFICATIONS
RESOURCES
RENTAL
PAPERS



Bladder pumps control VOC emissions for tough cleanup jobs.

At sites where air emission regulations are strict, or where viscous floating product such as crude oil must be recovered, Eliminator pumps do the job.

They use a bladder of tough Teflon® or elastomer to isolate the pump air supply from the pumped liquid -- so no matter how volatile the contaminants are, they don't get into the pump exhaust air.

Eliminator pumps provide reliable top-inlet skimming or bottom-inlet pumping from 2" and 4" wells. A wide range of accessories is available, including "roving" well caps to allow accurate pump inlet positioning, and bladder replacement kits for easy field maintenance.

Eliminator Advantages

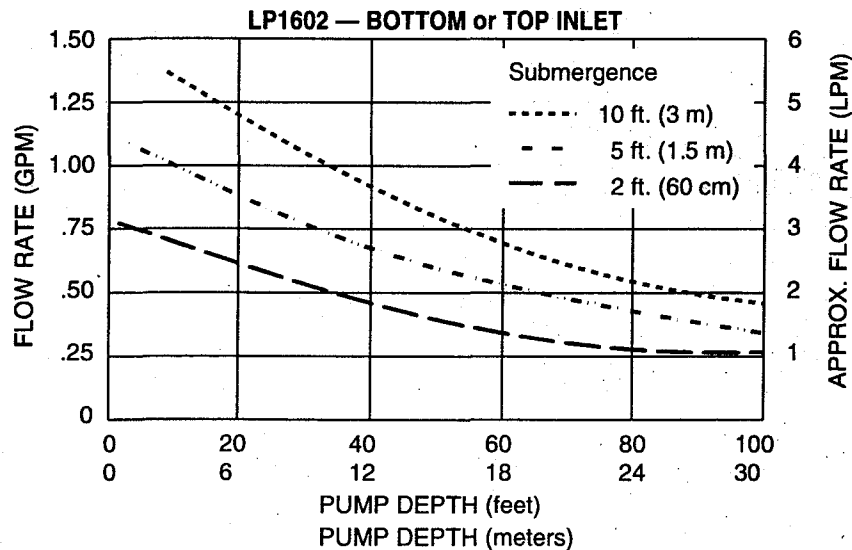
- No VOC air emissions in exhaust, because bladder isolates pumped liquid from air supply.
- Effective skimming of viscous hydrocarbons such as crude oil.
- Field replaceable bladders.

ELIMINATOR SPECIFICATIONS

Model No.	Eliminator 2"
Pump Type	LP1602
Inlet	Pneumatic bladder
O.D.	Bottom*
Length	1.75" (4.5 cm)
Weight	23.6" (60 cm)
Materials	3.5 lbs. (1.6 kg)
	LP1602—S.S./Q-Tal, Teflon
	bladder, Viton O-rings
Fittings:	Type
	Barb
	Material
	Stainless steel
Sizes:	Liquid Discharge
	1/2" (13 mm)
	Air Supply
	3/8" (9 mm)
Pump Stroke	.048 gal. (180 ml)
Operating pressure range	40-100 psi (275-700kPa)
Maximum lift	230 ft. (70 m)
Maximum flow rate	1.3 GPM/5 LPM (1,872 GPD/7,085 LPD)
Minimum submergence	Less than 1 ft. (30 cm)
Density of pumped liquid	Any
Cap sizes	2", 3", 4", 5", 6", & 8"
	(50, 75, 100, 125, 150, & 200 mm)

* Top inlet "can" also available

Note on flow curves: 100psi drive air supplied for all pump depths.



ELIMINATOR JACKETED TUBING SETS

QED's exclusive Jacketed Tubing, with a continuous nylon sheath, helps prevent hangups and loops, makes installation easier (especially in narrow or obstructed casing), and is lightweight with exceptional chemical resistance, outside and in.

Tubing sets are supplied cut to custom lengths. Jacketed tubing and sheath are both Nylon 12, which doesn't swell in water and provides excellent resistance to most liquids and cleanup conditions, including hydrocarbons, fuels, and alkalis. For extremes of acidity, consult QED.

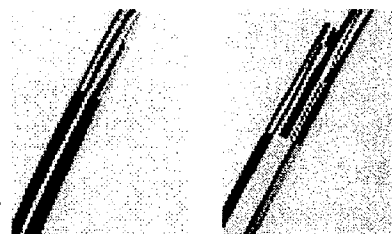
Two jacketed tubing sets can be used with Eliminator pumps. The SPTUBE set fits LP1702 4" (100 mm) well pumps, with 3/4" (19 mm) discharge and 1/2" (13 mm) air supply. Note: the 1/4" (6 mm) tube would be

used as optional bubbler tube for on/off level control. The 3/8" (9 mm) tube would be unused.

The MINTUBE set fits LP1602 pumps, with 1/2" (13 mm) discharge, 3/8" (9 mm) air supply, and 1/4" (6 mm) optional bubbler tube.

Cable-tied UV-protected Nylon tubing bundles are often specified: Model No. L417, 1/2" & 3/8" (13 & 9 mm), for LP1602 pumps, Model No. L413, 3/4" & 1/2" (19 & 13 mm), for LP1702.

Eliminator pumps are also used with single tubing in Nylon 12 or Teflon, depending on the liquid pumped. See pages 26 and 27 for specifications.



Model Description	SPTUBE	MINTUBE
	Set for 4" (100 mm) well pumps contains 4 tubes	Set for 2" (50 mm) well pumps contains 3 tubes
Discharge O.D.	3/4" (19 mm)	1/2" (13 mm)
Air Supply O.D.	1/2" (13 mm)	3/8" (9 mm)
Unused O.D.	3/8" (9 mm)	—
*Bubbler O.D.	1/4" (6 mm)	1/4"
Min. Bend Radius	7" (18 cm)	6" (15 cm)
Max. Pressure	325 psi (2,250 kPa)	360 psi (2,500 kPa)
† Max. Cont. Length	200' (60 m)	250' (60 m)

*Bubbler tubing is used for on/off level control. More information on this is supplied with controller.
 † These are maximum lengths that can be shipped via UPS. For longer continuous lengths, consult QED.

ELIMINATOR CAPS AND ACCESSORIES

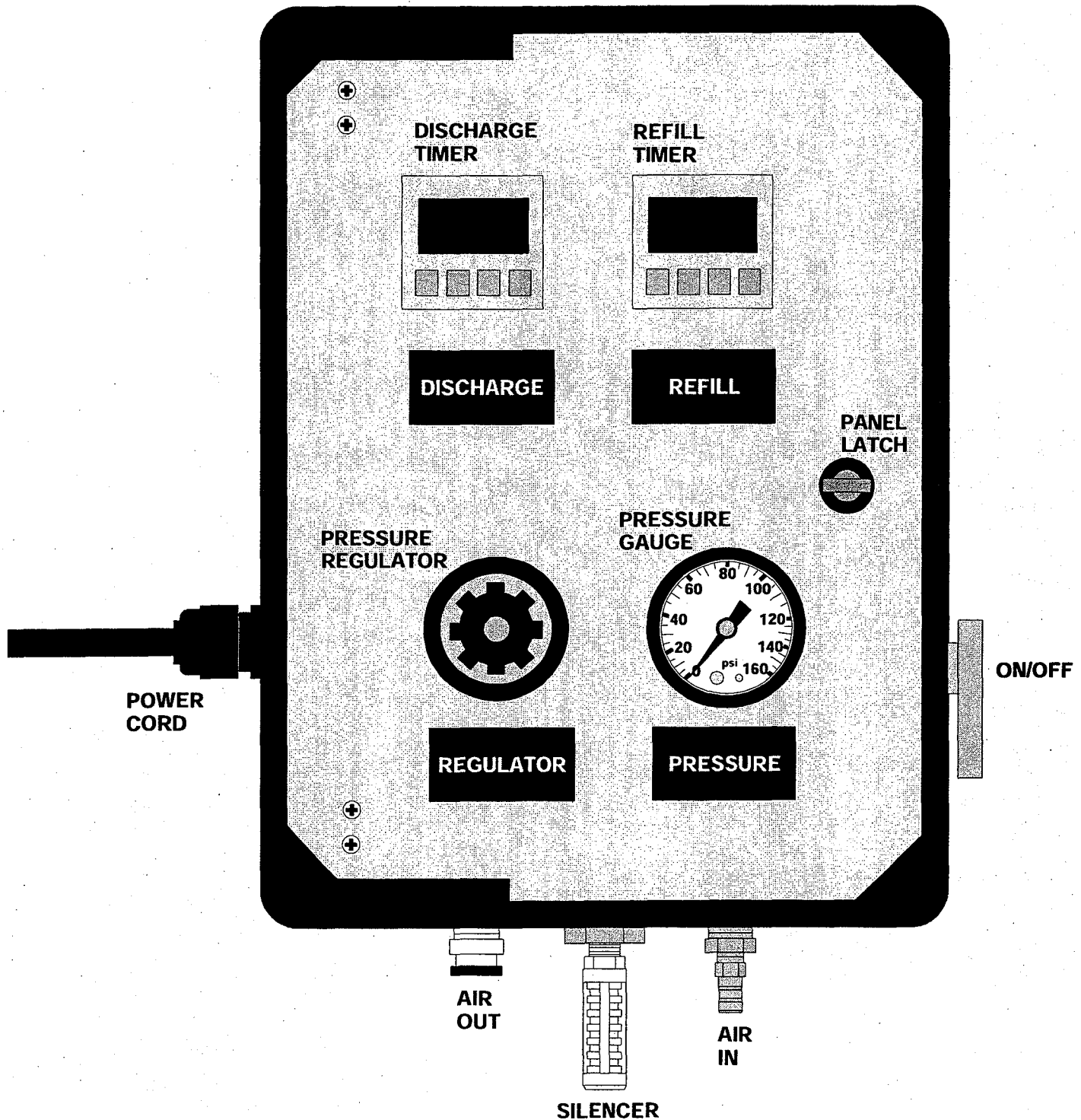
STANDARD & ROVING CAPS, WELL HEAD SUPPORTS

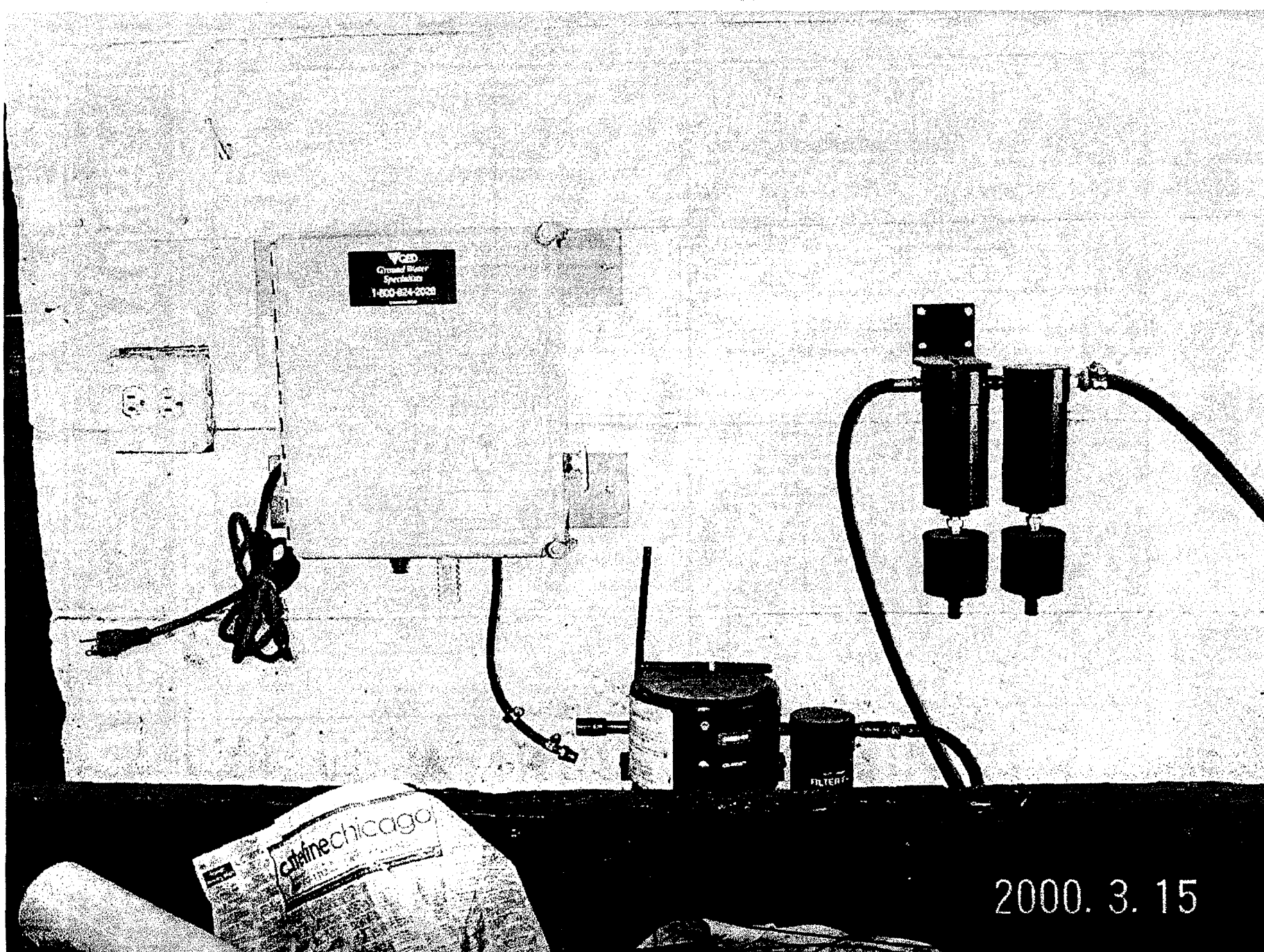
MODEL	MODEL FOR PUMP	WELL DIAM.	DESCRIPTION
L210A	LP1602	2" (50 mm)	Standard Cap, 2" (50 mm)
L210B	LP1602	3" (75 mm)	Standard Cap, 3" (75 mm)
L210C	All Models	4" (100 mm)	Standard Cap, 4" (100 mm)
L210D	All Models	5" (125 mm)	Standard Cap, 5" (125 mm)
L210E	All Models	6" (150 mm)	Standard Cap, 6" (150 mm)
L210G	All Models	8" (200 mm)	Standard Cap, 8" (200 mm)
L215A	LP1602	2" (50 mm)	Roving Cap, 2" (50 mm)
L212C	LP1602	4" (100 mm)	Roving Cap, 4" (100 mm)
L215C	LP1702	4" (100 mm)	Roving Cap, 4" (100 mm)
L222C	LP1602 & a 3/4" (19 mm) discharge pump	4" (100 mm)	Roving Cap, 4" (100 mm)
L223C	LP1602 & 2nd 1/2" (13 mm) discharge pump	4" (100 mm)	Roving Cap, 4" (100 mm)
L224C	LP1702 & 2nd 3/4" (19 mm) discharge pump	4" (100 mm)	Roving Cap, 4" (100 mm)
L215E	LP1702	6" (150 mm)	Roving Cap, 6" (150 mm)
L215G	LP1702	8" (200 mm)	Roving Cap, 8" (200 mm)
L220	LP1602	3" (75 mm) up	Aluminum Well Head Support
L221	LP1702	4" (100 mm) up	Aluminum Well Head Support

ACCESSORIES

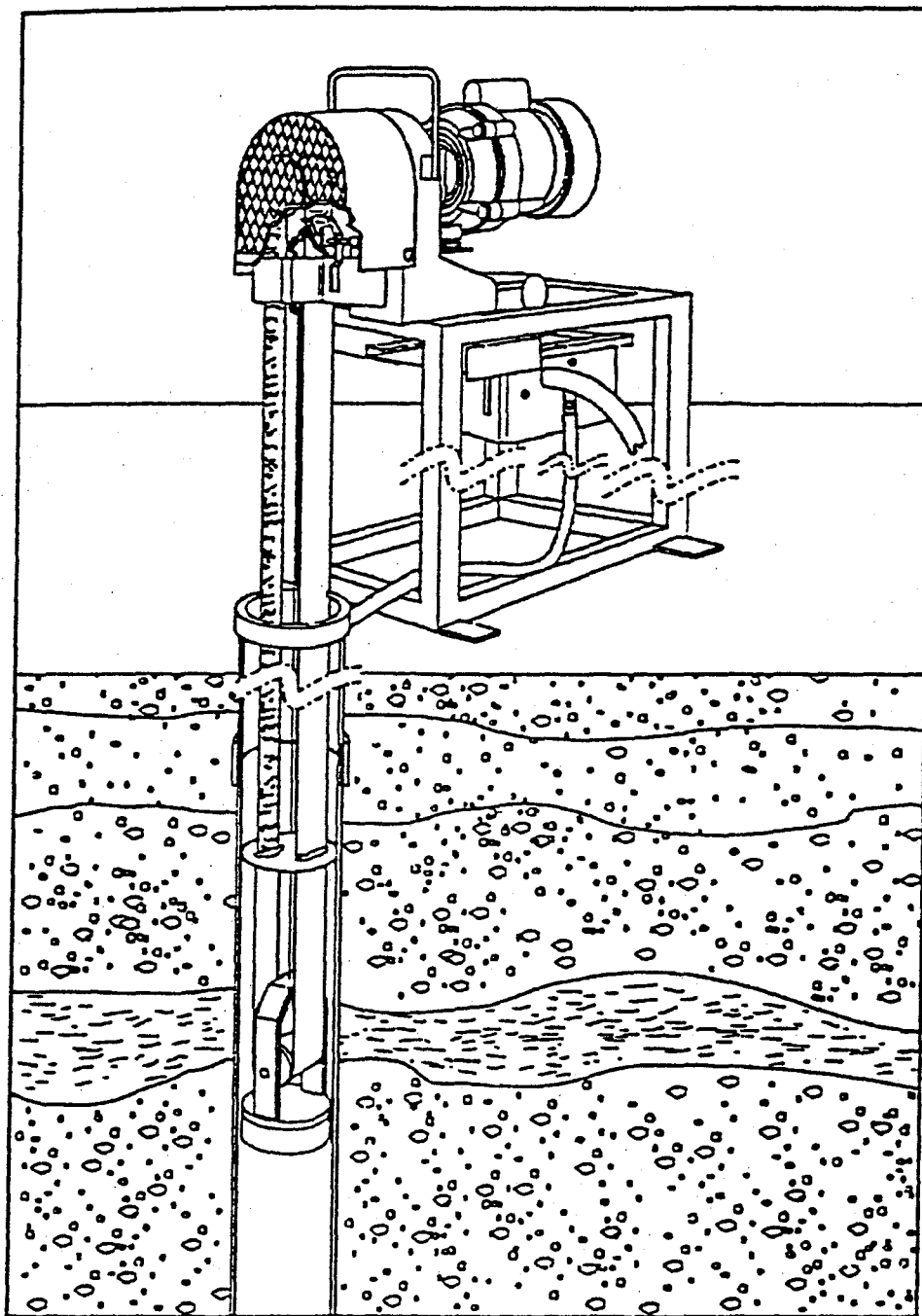
MODEL	MODEL FOR PUMP	DESCRIPTION
L360	All Models	Pulse Sender Controller
L370	All Models	Level Mate
L375	All Models	Level Mate w/Gage
L377	All Models	Level Mate Referenced
L380	All Models	Well Master
L354	All Models	Remote Well Operator/Exhaust Valve
L600	All Models	Remote Well Operator
L374	All Models	Tank Full Shutoff
35548	LP1602	Roving Air Fitting, 3/8" (9 mm) Tube
35547	LP1702	Roving Air Fitting, 1/2" (13 mm) Tube
C1702	LP1702	Top Inlet Adaptor, 4" (100 mm) PVC/SS
C1602	LP1602	Top Inlet Adaptor, 2" (50 mm)
35316	LP1602	Bottom Inlet Screen, 2" (50 mm) Teflon
S1702	LP1702	Bottom Inlet Screen, 4" (100 mm) Q-Tal
S1001	LP1702	Bottom Inlet Screen, 4" (100 mm) PVC
L353	All Models	Exhaust valve, external TFE-coat for 2" (50 mm) wells up
L350	LP1702	Exhaust valve, in-well TFE-coat for 4" (100 mm) wells up
L351	LP1702	Exhaust valve, external for 4" (100 mm) wells up
L355	LP1602	Exhaust valve, in-well TFE coat for 4" (100 mm) wells up
L356	LP1602	Exhaust valve, in-well for 4" (100 mm) wells up
L358	All Models	Exhaust valve used for controller when remote well operators are used
35978	LP1602	Bladder Replacement Kit w/35052 & 35312
35979	LP1602	Bladder Replacement Kit No Tools
36333	LP1702	Bladder Replacement Kit
36819	LP1702	Bladder Replacement Kit
35750	All Models	Pulse Pump O & M Manual

DPS360





2000. 3. 15

ABANAKI**PetroXtractor™ — Well Oil Skimmer****Oil Skimming for Wells and Other Small Openings**

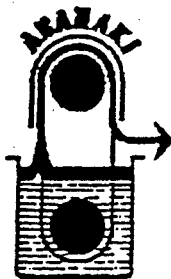
- Ideal for removal of floating oil and other hydrocarbon liquids from existing remediation or monitoring wells
- Can be installed in well casings as small as 2 in. ID
- Elevates skimmed oil 100 feet or more for easy discharge into 55 gallon drums
- Removes up to 12 gph of oil from water

General Description

The Abanaki PetroXtractor™ is a dependable and cost effective means of removing oil, fuel, and other floating hydrocarbons from water where access to the fluid surface is limited. It provides efficient remediation of groundwater contaminated by oil, using existing recovery and monitoring wells. Often, the PetroXtractor™ working alone will reduce oil or fuel content to an acceptable EPA level. Models are available for two inch, four inch, and six inch ID well casings, with removal rates up to 12 gph. Depths of 100 feet or more can be accommodated without the use of pumps.

The PetroXtractor™ is an oil skimmer that makes use of the differences in specific gravity and surface tension between oil and water. These physical characteristics allow the unit's continuous belt to attract floating oil in the well. After picking up the oil, the belt travels over the head pulley on the drive end and through tandem wiper blades. The oil is then scraped off both sides of the belt and discharged through a 1-1/4" ID hose. The unique bearingless design of the tail pulley (immersed in the well water) with its tapered frame allows it to perform three important functions: it keeps proper tension on the belt, prevents accidental loss down the well, and keeps the belt centered in the casing.

The PetroXtractor™ can be installed in existing wells by mounting it on a flat surface above the well casing. Skimmer operation consists of merely lowering the belt and tail pulley into the casing until the pulley is fully immersed, placing the discharge hose in a container, and switching the unit on.



ABANAKI
CORPORATION
OIL SKIMMER DIVISION

17387 Munn Road
Chagrin Falls, OH 44023
Telephone: 800-358-7546

The PetroXtractor Advantages

- Allows existing monitoring wells to be used as recovery wells
- Portable — can be easily hand-carried from site to site
- A single unit separates oil and elevates it up to 100 feet without a pump
- Skims very little water (unlike other skimmers and torpedo pumps)
- Maintains skimming efficiency with fluctuating water level
- Tail pulley is tethered to the frame to prevent accidental loss of belt and tail pulley in the well casing

PetroXtractor — Well Oil Skimmer

Where To Use The PetroXtractor

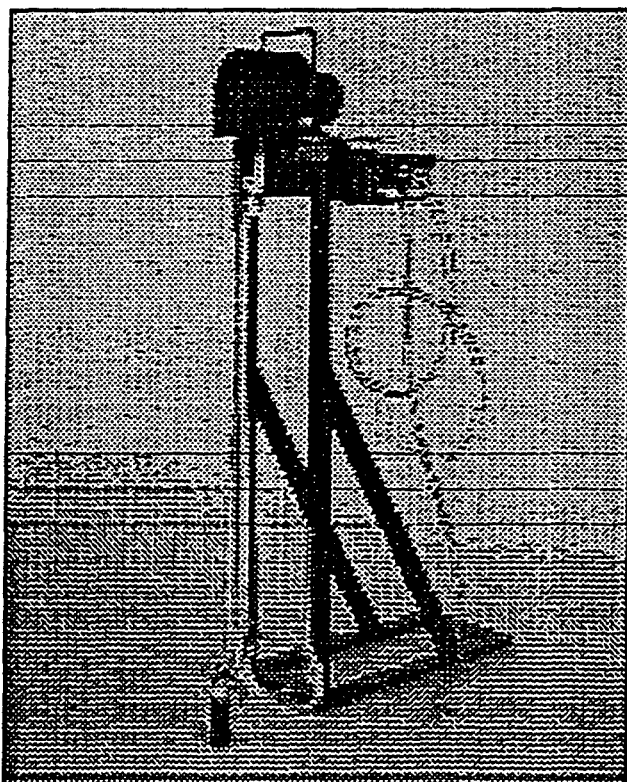
The PetroXtractor is designed for those applications that have a limited access area and a deep drop between the mounting surface and the surface of the liquid. The unit can be used anywhere electric power or compressed air is available. Explosion proof and pneumatic motors are available for areas where combustible fumes may be present.

Applications

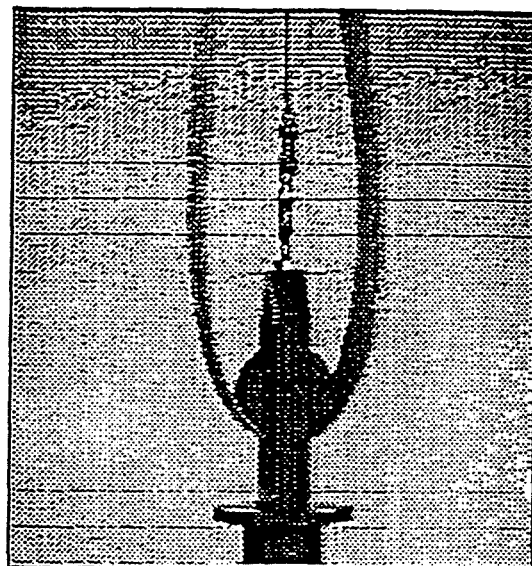
- Groundwater monitoring wells
- Recovery wells
- Underground tanks

Rugged Construction For Harsh Conditions

The PetroXtractor will provide for many years of trouble-free service. Belts are made of a specially engineered polymer, or a corrosion-resistant steel. A tough power train keeps the PetroXtractor running under the most severe conditions. With the proper configuration, the PetroXtractor can handle liquid temperatures up to 180°F, and the pH of the fluid can range from 1 to 13.



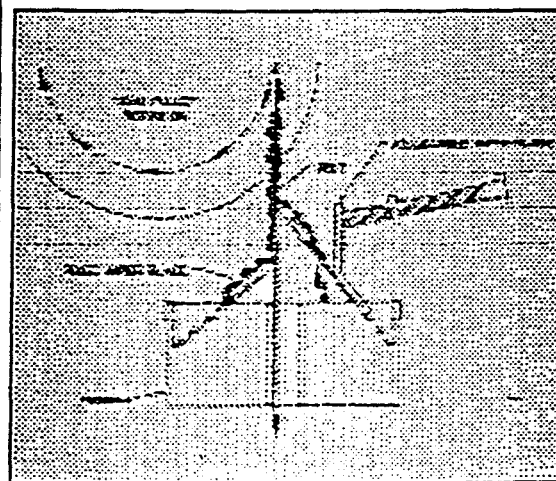
PetroXtractor on Mounting Stand with Oil Concentrator™



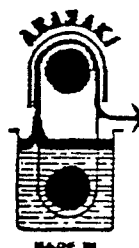
Tail Pulley Detail

Key Features of the PetroXtractor

- Small mounting and operating area
- Chip resistant-powder coated finish
- Customized belt lengths and materials
- Easily mounted on flat surface
- Belt and wipers impervious to oils and fuels
- Weighted and tethered tail pulley
- Fast cleaning with minimal maintenance
- Can be customized to application needs



Wiper Blade Detail



ABANAKI
CORPORATION
OIL SKIMMER DIVISION

17387 Mum Road
Chagrin Falls, OH 44023
Telephone: 800-358-7546

ALBANAKE OIL SKIMMERS

See Other Products

PetroXtractor®

- ## Oil Skimming for Wells and Other Small Openings with Large Vertical Drops

The Abanaki PetroXtractor is a dependable and cost effective means of removing oil, fuel, and other floating hydrocarbons from water where access to the fluid surface is limited. It provides efficient remediation of groundwater contaminated by oil, using existing recovery and monitoring wells. Often, the PetroXtractor working alone will reduce oil or fuel content to an acceptable E.P.A. level. Models are available for two inch, four inch, and six inch or larger ID well casings, with removal rates up to 12 gph. (based on SEA 30 motor oil). Depths of 100 feet or more can be accommodated without the use of pumps.

The PetroXtractor is an oil skimmer that makes use of the differences in specific gravity and surface tension between oil and water. These physical characteristics allow the unit's continuous belt to attract floating oil in the well. After picking up the oil, the belt travels over the head pulley on the drive unit and through tandem wiper blades. The oil is then scraped off both sides of the belt and discharged through a 1-1/4" ID hose. The unique bearingless design of the tail pulley (immersed in the well water) with its tethered frame allows it to perform three important functions: it keeps proper tension on the belt, prevents accidental loss down the well, and keeps the belt centered in the casing.

The PetroXtractor can be installed in existing wells by mounting it on a flat surface above the well casing. Skimmer operation consists of merely lowering the belt and tail pulley into the casing until the pulley is fully immersed, placing the discharge hose in a container, and switching the unit on.

- Ideal for removal of floating oil and other hydrocarbon liquids from existing remediation or monitoring wells
- Can be installed in well casings as small as 2 in. ID
- Elevates skimmed oil 100 feet or more for discharge into 55 gal drum
- Removes up to 12 gph of oil from water

Advantages

- Allows existing monitoring wells to be used as recovery wells
- Portable can be easily hand-carried from site to site
- A single unit separates oil and elevates it up to 100 feet without a pump
- Skims very little water (unlike other skimmers and torpedo pumps)
- Maintains skimming efficiency with fluctuating water level
- Tail pulley is tethered to the frame to prevent accidental loss of belt and
- tail pulley in the well casing
- Easy mounting, fast cleaning with minimal maintenance
- Belt materials to fit any application

Rugged Construction For Harsh Conditions: The PetroXtractor will provide for many years of trouble-free service. Belts are specifically selected for your application (see **Belt Selection** page). A tough power train keeps the PetroXtractor running under the most severe conditions. With the proper configuration, the PetroXtractor can handle liquid temperatures up to 180 °F, and the pH of the fluid can range from 1 to 13.

Applications

The PetroXtractor is designed for those applications that have a limited access area and a deep drop between the mounting surface and the surface of the liquid. The unit can be used anywhere, even where no electric power or compressed air is available. Explosion proof and pneumatic motors are available for areas where combustible fumes may be present. Vapor-tight models can also enhance the explosion proof properties of the unit.

- Groundwater monitoring wells
- Recovery wells
- Underground tanks

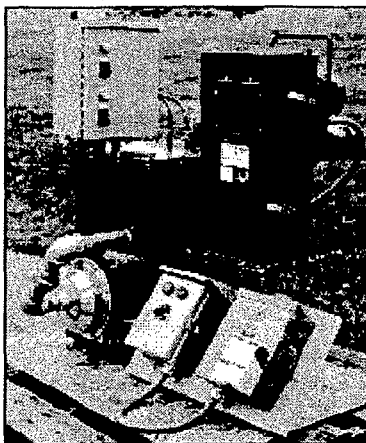
Features

- Small mounting and operating area
- Chip resistant-powder coated finish
- Customized belt lengths and materials
- Easily mounted on flat surface
- Belt and wipers impervious to oils and fuels
- Weighted and tethered tail pulley
- Fast cleaning with minimal maintenance
- Can be customized to application needs

PetroXtractor Underground Systems

All units can be built Explosion Proof, Vapor-Tight or Standard. Size of transfer pump is dependent on product, run to AST and

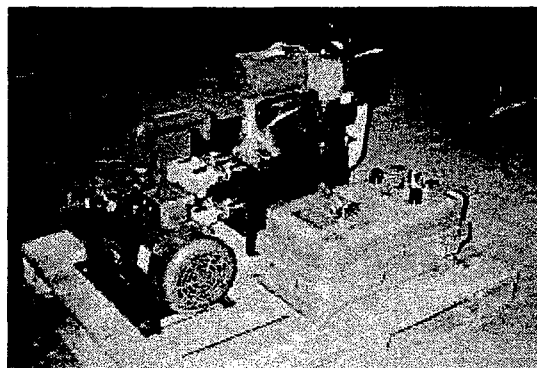
grade differential.



Non-XP, Vapor-Tight

This unit features:

- Fully automated controls
- Product transfer capability
- Above grade monitoring
- Remote disconnect



Explosion Proof

This unit features:

- Fits in shallow vault (2.5' deep)
- Fully automated controls
- Product transfer capability
- Complete 'in vault' controls



Standard

This unit features:

- Fits in narrow vault (3' dia)
- Fully automated controls
- Product transfer capability
- Complete 'in vault' controls

Solar Powered PetroXtractor

Specifications

Oil Removal Model PX-A: 3 gph (11 lph) with 1 in.(2.5 cm)

Rate: wide belt

Model PX-B: 6 gph (23 lph) with 2 in.(5 cm)
wide belt

Model PX-C: 12 gph (45 lph) with 4 in.(10 cm)
wide belt

(Removal rate is based on 30 weight oil in water.)

Motor: Fractional hp TEFC, 115VAC, single phase, 60 Hz gear motor, including 8 foot cord with electrical plug
Optional: 50 Hz; 3-phase; explosion proof; 12VDC; and pneumatic

Belt Width PX-A (1 in. (2.5 cm) for 2 in. (5 cm) ID casing

(Specify): PX-B (2 in. (5 cm)) for 4 in. (10 cm) ID casing

PX-C (4 in. (10 cm)) for 6 in. (15 cm) ID casing

Belt Length: User specified (up to 100', measured from the center of head pulley to center of tail pulley)

Belt Material: Specifically selected for your application (see Belt Selection page)

Wiper UHC rubber standard, Optional: Nitrile, CRV

Material: rubber and Ceramic

Mounting Flat base mount with oil discharge through a 1-

Method: 1/4 in.
(3.1cm) ID hose

Mounting Area: Installation drawing coming soon.

Weights: Complete assembly without tail pulley or belt:

Model PX-A: 30 lbs. (13.6 Kg.)

Model PX-B: 31 lbs. (14 Kg.)

Model PX-C: 38 lbs. (17 Kg.)

PX-A Tail pulley: 2 lbs. (1.3 Kg.)

PX-B Tail Pulley: 3 lbs. (2.7 Kg.)

PX-C Tail Pulley: 4.5 lbs. (4.1 Kg.)

PX-A, 1 in. x 5 ft (1.5m) polymer belt: 0.55 lbs.
(0.25 Kg.)

PX-B, 2 in. x 5 ft (1.5m) polymer belt: 1.1 lbs.
(0.5 Kg.)

PX-C, 4 in. x 5 ft (1.5m) polymer belt: 2.2 lbs.
(1.0 Kg.)

(Belt weight varies according to actual length specified.)

Options

(Specify):

- Above-ground mounting stand
- Below grade mounting kit with reservoir and mounting bracket; transfer pump optional
- Stainless steel construction
- On-Off float switch to fit 3/4 in.(1.8 cm) bung of discharge drum

- bung of discharge drum
- Oil Concentrator™ for virtually water-free oil discharge. (See back page.)
- Reinforced poly-shelters for durable protection of skimmer in outside applications
- 24 hour timer to start/stop PetroXtractor at specified intervals

Standard Configuration: The Abanaki PetroXtractor is supplied with a head pulley guard, adjustable wiper blade assembly, skimmer belt, tail pulley, fractional hp, 110VAC, 60 Hz gear motor, and assembly/maintenance instructions.

- Specification Notes:**
1. The PetroXtractor is UPS shippable.
 2. Consult factory for recommendations covering operating conditions not listed here.

Contact Abanaki

- [Get Expert Help](#)
- [How to Buy Products](#)

Send This Page to a Colleague or Friend!

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="button" value="Send"/>
Your E-Mail	Your Name	E-Mail of Friend	

[Home](#) • [Products](#) • [Selection Guide](#) • [Case Studies](#)
[Newsletter](#) • [About Skimming](#) • [Articles & Papers](#) • [Links](#)
[Ask Skimmerman](#) • [About Abanaki](#) • [News](#) • [Buy Products](#)

ABANAKI
CORPORATION
OIL SKIMMER DIVISION

Abanaki Corporation Oil Skimmer Division
17387 Munn Road • Chagrin Falls, OH 44023
Phone (440) 543-7400 • Toll Free (800) 358-SKIM
E-mail info@abanaki.com • Fax (440) 543-7404

© 2000 Abanaki Corporation. All rights reserved.
powered by [dynamics online](#)

APPENDIX D
FIELD REPORTS

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-113
RECOVERED DNAPL & GROUNDWATER REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-113 is located in the Heat Treating Building. A pneumatic driven QED Eliminator bladder pump has been installed and set to pump approximately 2 to 3 gallons per day. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to monitor the operation of the QED system. As each drum is filled (approximately two per month) the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated groundwater from well M&A-113). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out one of these forms for each filled drum. Before connecting the new drum, one or two pump strokes are to be discharged into a clear plastic bottle and an observation made as to whether or not any dense non-aqueous phase liquid (DNAPL) is present. If present, DNAPL is the dark liquid at the bottom.

3. Report Form Completion

Fill in the dates below for each drum connected to the QED Pump System

Date drum connected to QED discharge connection	<u>10/19/98</u>	<u>R.H.</u>
Date drum disconnected from QED discharge connection	<u>11/2/98</u>	<u>RA</u>
Approximate percentage of liquid in clear bottle that is DNAPL	<u>1/2"</u>	<u>RA</u>

4. Reporting Data to Mabbett

A copy of each completed form is to be faxed to the Bedford, MA, office of M&A to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-113
RECOVERED DNAPL & GROUNDWATER REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-113 is located in the Heat Treating Building. A pneumatic driven QED Eliminator bladder pump has been installed and set to pump approximately 2 to 3 gallons per day. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to monitor the operation of the QED system. As each drum is filled (approximately two per month) the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated groundwater from well M&A-113). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out one of these forms for each filled drum. Before connecting the new drum, one or two pump strokes are to be discharged into a clear plastic bottle and an observation made as to whether or not any dense non-aqueous phase liquid (DNAPL) is present. If present, DNAPL is the dark liquid at the bottom.

3. Report Form Completion

Fill in the dates below for each drum connected to the QED Pump System

Date drum connected to QED discharge connection 11/2/98 RH

Date drum disconnected from QED discharge connection 11/18/98 RH

Approximate percentage of liquid in clear bottle that is DNAPL 3/5" RH

4. Reporting Data to Mabbett

A copy of each completed form is to be faxed to the Bedford, MA, office of M&A to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-113
RECOVERED DNAPL & GROUNDWATER REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-113 is located in the Heat Treating Building. A pneumatic driven QED Eliminator bladder pump has been installed and set to pump approximately 2 to 3 gallons per day. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to monitor the operation of the QED system. As each drum is filled (approximately two per month) the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated groundwater from well M&A-113). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out one of these forms for each filled drum. Before connecting the new drum, one or two pump strokes are to be discharged into a clear plastic bottle and an observation made as to whether or not any dense non-aqueous phase liquid (DNAPL) is present. If present, DNAPL is the dark liquid at the bottom.

3. Report Form Completion

Fill in the dates below for each drum connected to the QED Pump System

Date drum connected to QED discharge connection 11/18/98 RA

Date drum disconnected from QED discharge connection 11/30/98 RA

Approximate percentage of liquid in clear bottle that is DNAPL 1/2" RA

4. Reporting Data to Mabbett

A copy of each completed form is to be faxed to the Bedford, MA, office of M&A to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-113
RECOVERED DNAPL & GROUNDWATER REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction
Monitoring well M&A-113 is located in the Heat Treating Building. A pneumatic driven QED Eliminator bladder pump has been installed and set to pump approximately 2 to 3 gallons per day. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.
2. System Operation
LHT personnel are requested to monitor the operation of the QED system. As each drum is filled (approximately two per month) the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated groundwater from well M&A-113). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out one of these forms for each filled drum. Before connecting the new drum, one or two pump strokes are to be discharged into a clear plastic bottle and an observation made as to whether or not any dense non-aqueous phase liquid (DNAPL) is present. If present, DNAPL is the dark liquid at the bottom.
3. Report Form Completion
Fill in the dates below for each drum connected to the QED Pump System
Date drum connected to QED discharge connection 01/13/99 PA
Date drum disconnected from QED discharge connection 01/27/99 RH
Approximate percentage of liquid in clear bottle that is DNAPL 1/64" RH
4. Reporting Data to Mabbett
A copy of each completed form is to be faxed to the Bedford, MA, office of M&A to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-113
RECOVERED DNAPL & GROUNDWATER REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-113 is located in the Heat Treating Building. A pneumatic driven QED Eliminator bladder pump has been installed and set to pump approximately 2 to 3 gallons per day. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to monitor the operation of the QED system. As each drum is filled (approximately two per month) the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated groundwater from well M&A-113). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out one of these forms for each filled drum. Before connecting the new drum, one or two pump strokes are to be discharged into a clear plastic bottle and an observation made as to whether or not any dense non-aqueous phase liquid (DNAPL) is present. If present, DNAPL is the dark liquid at the bottom.

3. Report Form Completion

Fill in the dates below for each drum connected to the QED Pump System

Date drum connected to QED discharge connection 01/27/99 RH

Date drum disconnected from QED discharge connection 02/09/99 RH

Approximate percentage of liquid in clear bottle that is DNAPL 1/8" RH

4. Reporting Data to Mabbett

A copy of each completed form is to be faxed to the Bedford, MA, office of M&A to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-113
RECOVERED DNAPL & GROUNDWATER REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-113 is located in the Heat Treating Building. A pneumatic driven QED Eliminator bladder pump has been installed and set to pump approximately 2 to 3 gallons per day. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to monitor the operation of the QED system. As each drum is filled (approximately two per month) the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated groundwater from well M&A-113). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out one of these forms for each filled drum. Before connecting the new drum, one or two pump strokes are to be discharged into a clear plastic bottle and an observation made as to whether or not any dense non-aqueous phase liquid (DNAPL) is present. If present, DNAPL is the dark liquid at the bottom.

3. Report Form Completion

Fill in the dates below for each drum connected to the QED Pump System

Date drum connected to QED discharge connection 02/09/99 ZH

Date drum disconnected from QED discharge connection 02/19/99 ZH

Approximate percentage of liquid in clear bottle that is DNAPL 1/8" ZH

4. Reporting Data to Mabbett

A copy of each completed form is to be faxed to the Bedford, MA, office of M&A to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-113
RECOVERED DNAPL & GROUNDWATER REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-113 is located in the Heat Treating Building. A pneumatic driven QED Eliminator bladder pump has been installed and set to pump approximately 2 to 3 gallons per day. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to monitor the operation of the QED system. As each drum is filled (approximately two per month) the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated groundwater from well M&A-113). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out one of these forms for each filled drum. Before connecting the new drum, one or two pump strokes are to be discharged into a clear plastic bottle and an observation made as to whether or not any dense non-aqueous phase liquid (DNAPL) is present. If present, DNAPL is the dark liquid at the bottom.

3. Report Form Completion

Fill in the dates below for each drum connected to the QED Pump System

Date drum connected to QED discharge connection 02/29/99 EH

Date drum disconnected from QED discharge connection 03/25/99 EH

Approximate percentage of liquid in clear bottle that is DNAPL 1/2 2P

4. Reporting Data to Mabbett

A copy of each completed form is to be faxed to the Bedford, MA, office of M&A to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-113
RECOVERED DNAPL & GROUNDWATER REPORT FORM
Lindberg Heat Treating Company Melrose Park, II. facility
October 13, 1998

1. Introduction

Monitoring well M&A-113 is located in the Heat Treating Building. A pneumatic driven QED Eliminator bladder pump has been installed and set to pump approximately 2 to 3 gallons per day. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to monitor the operation of the QED system. As each drum is filled (approximately two per month) the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated groundwater from well M&A-113). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out one of these forms for each filled drum. Before connecting the new drum, one or two pump strokes are to be discharged into a clear plastic bottle and an observation made as to whether or not any dense non-aqueous phase liquid (DNAPL) is present. If present, DNAPL is the dark liquid at the bottom.

3. Report Form Completion

Fill in the dates below for each drum connected to the QED Pump System

Date drum connected to QED discharge connection 03/25/99 RH

Date drum disconnected from QED discharge connection 04/05/99 RH

Approximate percentage of liquid in clear bottle that is DNAPL 1/8" RH

4. Reporting Data to Mabbett

A copy of each completed form is to be faxed to the Bedford, MA, office of M&A to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-113
RECOVERED DNAPL & GROUNDWATER REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-113 is located in the Heat Treating Building. A pneumatic driven QED Eliminator bladder pump has been installed and set to pump approximately 2 to 3 gallons per day. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to monitor the operation of the QED system. As each drum is filled (approximately two per month) the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated groundwater from well M&A-113). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out one of these forms for each filled drum. Before connecting the new drum, one or two pump strokes are to be discharged into a clear plastic bottle and an observation made as to whether or not any dense non-aqueous phase liquid (DNAPL) is present. If present, DNAPL is the dark liquid at the bottom.

3. Report Form Completion

Fill in the dates below for each drum connected to the QED Pump System

Date drum connected to QED discharge connection 04/05/99 RA

Date drum disconnected from QED discharge connection 04/23/99 RA

Approximate percentage of liquid in clear bottle that is DNAPL spoty

4. Reporting Data to Mabbett

A copy of each completed form is to be faxed to the Bedford, MA, office of M&A to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-113
RECOVERED DNAPL & GROUNDWATER REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-113 is located in the Heat Treating Building. A pneumatic driven QED Eliminator bladder pump has been installed and set to pump approximately 2 to 3 gallons per day. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to monitor the operation of the QED system. As each drum is filled (approximately two per month) the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated groundwater from well M&A-113). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out one of these forms for each filled drum. Before connecting the new drum, one or two pump strokes are to be discharged into a clear plastic bottle and an observation made as to whether or not any dense non-aqueous phase liquid (DNAPL) is present. If present, DNAPL is the dark liquid at the bottom.

3. Report Form Completion

Fill in the dates below for each drum connected to the QED Pump System

Date drum connected to QED discharge connection 04/23/99 RH

Date drum disconnected from QED discharge connection 06/16/99 RH

Approximate percentage of liquid in clear bottle that is DNAPL None

4. Reporting Data to Mabbett

A copy of each completed form is to be faxed to the Bedford, MA, office of M&A to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-113
RECOVERED DNAPL & GROUNDWATER REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-113 is located in the Heat Treating Building. A pneumatic driven QED Eliminator bladder pump has been installed and set to pump approximately 2 to 3 gallons per day. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to monitor the operation of the QED system. As each drum is filled (approximately two per month) the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated groundwater from well M&A-113). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out one of these forms for each filled drum. Before connecting the new drum, one or two pump strokes are to be discharged into a clear plastic bottle and an observation made as to whether or not any dense non-aqueous phase liquid (DNAPL) is present. If present, DNAPL is the dark liquid at the bottom.

3. Report Form Completion

Fill in the dates below for each drum connected to the QED Pump System

Date drum connected to QED discharge connection 06/16/99 PH

Date drum disconnected from QED discharge connection 07/15/99 PH

Approximate percentage of liquid in clear bottle that is DNAPL _____

4. Reporting Data to Mabbett

A copy of each completed form is to be faxed to the Bedford, MA, office of M&A to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-113
RECOVERED DNAPL & GROUNDWATER REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-113 is located in the Heat Treating Building. A pneumatic driven QED Eliminator bladder pump has been installed and set to pump approximately 2 to 3 gallons per day. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to monitor the operation of the QED system. As each drum is filled (approximately two per month) the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated groundwater from well M&A-113). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out one of these forms for each filled drum. Before connecting the new drum, one or two pump strokes are to be discharged into a clear plastic bottle and an observation made as to whether or not any dense non-aqueous phase liquid (DNAPL) is present. If present, DNAPL is the dark liquid at the bottom.

3. Report Form Completion

Fill in the dates below for each drum connected to the QED Pump System

Date drum connected to QED discharge connection 9-20-99

Date drum disconnected from QED discharge connection 10-26-99

Approximate percentage of liquid in clear bottle that is DNAPL Spotty

4. Reporting Data to Mabbett

A copy of each completed form is to be faxed to the Bedford, MA, office of M&A to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-113
RECOVERED DNAPL & GROUNDWATER REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction
Monitoring well M&A-113 is located in the Heat Treating Building. A pneumatic driven QED Eliminator bladder pump has been installed and set to pump approximately 2 to 3 gallons per day. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.
2. System Operation
LHT personnel are requested to monitor the operation of the QED system. As each drum is filled (approximately two per month) the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated groundwater from well M&A-113). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out one of these forms for each filled drum. Before connecting the new drum, one or two pump strokes are to be discharged into a clear plastic bottle and an observation made as to whether or not any dense non-aqueous phase liquid (DNAPL) is present. If present, DNAPL is the dark liquid at the bottom.
3. Report Form Completion
Fill in the dates below for each drum connected to the QED Pump System
Date drum connected to QED discharge connection 10/26/99
Date drum disconnected from QED discharge connection 12/15/99
Approximate percentage of liquid in clear bottle that is DNAPL Spotty
4. Reporting Data to Mabbett
A copy of each completed form is to be faxed to the Bedford, MA, office of M&A to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-114
SKIMMER OPERATION & RECOVERED PETROLEUM REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-114 is located in the Heat Treating Building and a ABANAKI belt oil skimmer has been installed. The belt skimmer is equipped with a timer which must be manually set each time skimmer is run. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to operate the belt skimmer system for approximately 3 hours one time each week. An extension cord is necessary to provide electricity to run the belt skimmer. Observe whether or not oil is visible on belt. Also observed if oil is dripping into the drum. Record the date, times of operation and oil observations below. As each drum is filled the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated petroleum and groundwater from well M&A-114). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out this form as requested.

3. Report Form Completion

Date and times of operation.

Observations (was oil observed on belt? Was oil thin or thick? Any Odors? Amount of oil in drum?)

2/21/00 - 12:55 P.M.

oil on belt, thin, no odor, 7"

2/20/00 - 7:46 A.M.

oil on belt, thin, no odor, 7 1/4"

3/4/00 - 7:59 A.M.

oil on belt, thin, no odor, 7 1/4"

3/20/00 - 103:8 A.M.

oil on belt, thin, no odor, 7 1/2"

4/4/00 - 1:52 P.M.

oil on belt, thin, no odor, 7 3/4"

4/20/00 - 9:17 A.M.

oil on belt, thin, no odor, 8"

5-1-00 - 8:42 A.M.

oil on belt, thin, no odor, 8 1/4"

4. Reporting Data to Mabbett

A copy of this completed form is to be faxed to the Bedford, MA, office of M&A once a month to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-114
SKIMMER OPERATION & RECOVERED PETROLEUM REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-114 is located in the Heat Treating Building and a ABANAKI belt oil skimmer has been installed. The belt skimmer is equipped with a timer which must be manually set each time skimmer is run. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to operate the belt skimmer system for approximately 3 hours one time each week. An extension cord is necessary to provide electricity to run the belt skimmer. Observe whether or not oil is visible on belt. Also observed if oil is dripping into the drum. Record the date, times of operation and oil observations below. As each drum is filled the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated petroleum and groundwater from well M&A-114). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out this form as requested.

3. Report Form Completion

Date and times of operation.

Observations (was oil observed on belt? Was oil thin or thick? Any Odors? Amount of oil in drum?)

1/3/00 - 10:20 A.M.
1/10/00 - 9:32 A.M.
1/19/00 - 9:16 A.M.
1/25/00 - 7:44 A.M.
2/2/00 - 7:54 A.M.
2/7/00 - 8:37 A.M.
2/14/00 - 8:31 A.M.

oil on belt, thin, no odor, 6 1/2"
oil on belt, thin, no odor, 6 1/2"
oil on belt, thin, no odor, 6 1/2"
oil on belt, thin, no odor, 6 1/2"
oil on belt, thin, no odor, 6 3/4"
oil on belt, thin, no odor, 7"
oil on belt, thin, no odor, 7"

4. Reporting Data to Mabbett

A copy of this completed form is to be faxed to the Bedford, MA, office of M&A once a month to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-114
SKIMMER OPERATION & RECOVERED PETROLEUM REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-114 is located in the Heat Treating Building and a ABANAKI belt oil skimmer has been installed. The belt skimmer is equipped with a timer which must be manually set each time skimmer is run. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to operate the belt skimmer system for approximately 3 hours one time each week. An extension cord is necessary to provide electricity to run the belt skimmer. Observe whether or not oil is visible on belt. Also observed if oil is dripping into the drum. Record the date, times of operation and oil observations below. As each drum is filled the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated petroleum and groundwater from well M&A-114). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out this form as requested.

3. Report Form Completion

Date and times of operation.

Observations (was oil observed on belt? Was oil thin or thick? Any Odors? Amount of oil in drum?)

10/12/99 8:16 A.M.

oil on belt, thin, no odor, 6 1/2 "

10/26/99 7:58 A.M.

oil on belt, thin, no odor, 6 1/2 "

11/8/99 9:22 A.M.

oil on belt, thin, no odor, 6 1/2 "

11/24/99 8:47 A.M.

oil on belt, thin, no odor, 6 1/2 "

12/6/99 7:28 A.M.

oil on belt, thin, no odor, 6 1/2 "

12/21/99 10:27 A.M.

oil on belt, thin, no odor, 6 1/2 "

4. Reporting Data to Mabbett

A copy of this completed form is to be faxed to the Bedford, MA, office of M&A once a month to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-114
SKIMMER OPERATION & RECOVERED PETROLEUM REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-114 is located in the Heat Treating Building and a ABANAKI belt oil skimmer has been installed. The belt skimmer is equipped with a timer which must be manually set each time skimmer is run. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to operate the belt skimmer system for approximately 3 hours one time each week. An extension cord is necessary to provide electricity to run the belt skimmer. Observe whether or not oil is visible on belt. Also observed if oil is dripping into the drum. Record the date, times of operation and oil observations below. As each drum is filled the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated petroleum and groundwater from well M&A-114). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out this form as requested.

3. Report Form Completion

Date and times of operation.

Observations (was oil observed on belt? Was oil thin or thick? Any Odors? Amount of oil in drum?)

06/16/99 at 07:49:00 RH
07/15/99 at 09:50:00 RH

Oil on Belt / Thin / no odors / 4 1/2" RH
Oil on Belt / Thin / no odors / 4 1/2" RH

4. Reporting Data to Mabbett

A copy of this completed form is to be faxed to the Bedford, MA, office of M&A once a month to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS & ENGINEERS
5 Alfred Circle, Bedford, MA 01730-2346
(781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-114
SKIMMER OPERATION & RECOVERED PETROLEUM REPORT FORM
Lindberg Heat Treating Company Melrose Park, IL facility
October 13, 1998

1. Introduction

Monitoring well M&A-114 is located in the Heat Treating Building and a ABANAKI belt oil skimmer has been installed. The belt skimmer is equipped with a timer which must be manually set each time skimmer is run. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to operate the belt skimmer system for approximately 3 hours one time each week. An extension cord is necessary to provide electricity to run the belt skimmer. Observe whether or not oil is visible on belt. Also observed if oil is dripping into the drum. Record the date, times of operation and oil observations below. As each drum is filled the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated petroleum and groundwater from well M&A-114). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out this form as requested.

3. Report Form Completion

Date and times of operation.

Observations (was oil observed on belt? Was oil thin or thick? Any Odors? Amount of oil in drum?)

02/09/99 at 08:02:00	Oil on Belt/Thin/no odors/3 1/2" PA
02/27/99 at 07:00:00	Oil on Belt/Thin/no odors/3 3/4" PA
03/25/99 at 08:00:00	Oil on Belt/Thin/no odors/3 3/4" PA
04/05/99 at 08:00:00	Oil on Belt/Thin/no odors/3 1/8" PA
04/23/99 at 09:50:00	Oil on Belt/Thin/no odors/3 7/8" PA
05/14/99 at 09:00:00	Oil on Belt/Thin/no odors/4" PA

4. Reporting Data to Mabbett

A copy of this completed form is to be faxed to the Bedford, MA, office of M&A once a month to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

MABBETT & ASSOCIATES, INC.
 ENVIRONMENTAL CONSULTANTS & ENGINEERS
 5 Alfred Circle, Bedford, MA 01730-2346
 (781) 275-6050 FAX (781) 275-5651

MONITORING WELL M&A-114
 SKIMMER OPERATION & RECOVERED PETROLEUM REPORT FORM
 Lindberg Heat Treating Company Melrose Park, IL facility
 October 13, 1998

1. Introduction

Monitoring well M&A-114 is located in the Heat Treating Building and a ABANAKI belt oil skimmer has been installed. The belt skimmer is equipped with a timer which must be manually set each time skimmer is run. Pumped fluids are discharged into a 55-gallon steel drum equipped with a tank full shut off sensing tube.

2. System Operation

LHT personnel are requested to operate the belt skimmer system for approximately 3 hours one time each week. An extension cord is necessary to provide electricity to run the belt skimmer. Observe whether or not oil is visible on belt. Also observed if oil is dripping into the drum. Record the date, times of operation and oil observations below. As each drum is filled the filled drum is to be replaced with an empty drum. The date of drum change must be written on both drums with a paint marker (each drum must be labeled with a date of connection, a date of disconnection and that the drum contains VOC contaminated petroleum and groundwater from well M&A-114). Each filled drum is to be move to a temporary storage area (the Salt Building during spring, fall and summer). Drums must be stored at a location where they will not freeze during winter. LHT personnel are to fill out this form as requested.

3. Report Form Completion

Date and times of operation.

Observations (was oil observed on belt? Was oil thin or thick? Any Odors? Amount of oil in drum?)

Oct	98
Nov	98
Dec	98
Jan 19, 1999	

None
None
None
thin/no odors / 3 1/2" in drum

4. Reporting Data to Mabbett

A copy of this completed form is to be faxed to the Bedford, MA, office of M&A once a month to the attention of George Lingenfelter (fax number 781 - 275 - 5651). The original form is to be kept on file in the LHT maintenance office.

DNAPL Removal from Well M&A-113

<u>Drum Number</u>	<u>Drum Date</u>	<u>DNAPL (ft)</u>	<u>DNAPL (gal)</u>	<u>Total Liquid (ft)</u>	<u>Total Liquid (gal)</u>	<u>Comments</u>
3	2-Dec-97	0.80	16.98	1.5	31.84	
11	10-Dec-97	0.35	7.43	1.5	31.84	
12	19-Dec-97	0.30	6.37	1.5	31.84	
	29-Dec-97	0.25	5.31	1.5	31.84	
13	16-Jan-98	0.35	7.43	1.5	31.84	
14	20-Feb-98	0.30	6.37	1.5	31.84	
15	16-Mar-98	0.33	7.08	1.54	32.72	
17	6-Apr-98	0.29	6.19	1.58	33.61	
18	1-May-98	0.29	6.19	1.58	33.61	
19	14-May-98	0.29	6.19	1.83	38.91	
20	28-May-98	0.28	5.84	1.58	33.61	
21	8-Jun-98	0.33	7.08	1.79	38.03	
22	18-Jun-98	0.23	4.86	1.33	28.30	
23	8-Jul-98	0.29	6.19	1.75	37.14	
24	22-Jul-98	0.75	15.92	1.75	37.14	
*	10-Aug-98	0.38	7.96	1.75	37.14	
25	19-Aug-98	0.46	9.73	1.63	34.49	
26	10-Sep-98	0.42	8.84	1.58	33.61	
*	25-Sep-98	0.25	5.31	1.75	37.14	
36	19-Oct-98	0.25	5.31	1.50	31.84	
37	28-Oct-98	0.19	4.07	1.40	29.72	
38	12-Nov-98	0.17	3.54	1.20	25.47	
39	30-Nov-98	0.27	5.66	1.50	31.84	
40	11-Dec-98	0.21	4.42	1.70	36.08	
41	13-Jan-99	0.19	4.07	1.60	33.96	
*	27-Jan-99	0.23	4.78	1.50	31.84	
*	9-Feb-99	0.14	3.01	1.45	30.78	

*	19-Feb-99	0.13	2.65	1.50	31.84
42	25-Mar-99	0.03	0.62	1.40	29.72
*	5-Apr-99	0.03	0.71	1.30	27.59
43	23-Apr-99	0.03	0.71	1.40	29.72
*	16-Jun-99	0.05	0.97	1.50	31.84
44	15-Jul-99	0.05	<u>1.06</u>	2.30	<u>48.82</u>

Total to date:

188.81

1097.51

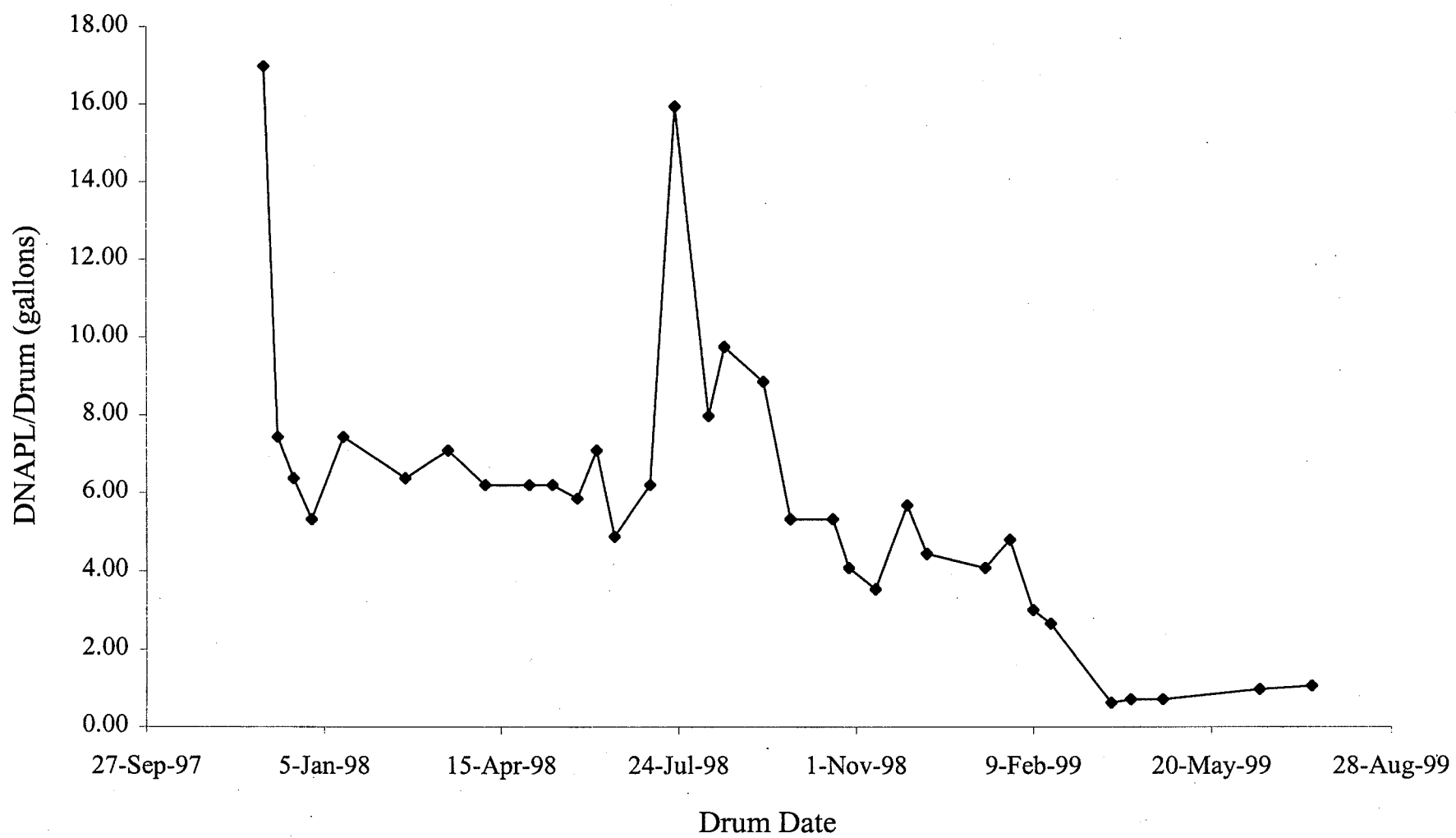
diameter of drum = 1.9 ft

height of drum = 3.0 ft

7.5gal/CF

$v = 3.14r^2h$

DNAPL Recovery M&A-113



APPENDIX E
DEED RESTRICTION FOR SOIL CONTAMINATION

Site Remediation Program Form (DRM-2)
(To Be Submitted with all Plans and Reports)

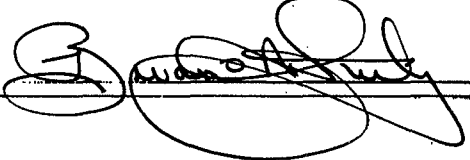
I. Site Identification:

Site Name:	<u>Lindberg Heat Treating Company</u>		
Street Address:	<u>1975 North Ruby Street</u>		
City:	<u>Melrose Park</u>	Illinois Inventory I. D. Number:	<u>0311860011</u>
IRMA Incident Number:	<u>891730</u>		

II. Remediation Applicant:

Applicant's Name:	<u>Mr. Brian Strebing</u>	Company:	<u>Lindberg Heat Treating Company</u>
Street Address:	<u>1975 North Ruby Street</u>		
City:	<u>Melrose Park</u>	State:	<u>IL</u>
ZIP Code:	<u>60160</u>	Phone:	<u>(708) 865-5551</u>

I hereby request that the Illinois EPA review and evaluate the attached project documents in accordance with the terms and conditions of the Environmental Protection Act (415 ILCS 5), implementing regulations, and the review and evaluation services agreement.

Remediation Applicant's Signature:  Date: 8-15-00

III. Contact Person:

Contact's Name:	<u>Mr. Brian Strebing</u>	Company:	<u>Lindberg Heat Treating Company</u>
Street Address:	<u>1975 North Ruby Street</u>		
City:	<u>Melrose Park</u>	State:	<u>IL</u>
ZIP Code:	<u>60160</u>	Phone:	<u>(708) 865-5551</u>

IV. Review & Evaluation Licensed Professional Engineer ("RELPE"), if applicable:

RELPE's Name:	_____			Company:	_____
Street Address:	_____				
City:	_____	State:	_____	ZIP Code:	_____
Phone:	_____				
Registration Number:	_____		License Expiration Date:	_____	

All information submitted is available to the public except when specifically designated by the Remediation Applicant to be treated confidentially as a trade secret or secret process in accordance with the Illinois Compiled Statutes, Section 7(a) of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Illinois EPA rules and guidelines. The Illinois EPA is authorized to require this information under Sections 415 ILCS 5/58 - 58.12 of the Environmental Protection Act and regulations promulgated thereunder. Disclosure of this information is required as a condition of participation in the Site Remediation Program. Failure to do so may prevent this form from being processed and could result in your plan(s) or report(s) being rejected. This form has been approved by the Forms Management Center.

V. Project Documents Being Submitted:

Document Title: <u>Remedial Action Plan</u>	Date of Preparation of Plan or Report: _____
Prepared by: <u>Mabbett & Associates, Inc.</u>	Prepared for: <u>Lindberg Heat Treating Company</u>
Type of Document Submitted:	
<input type="checkbox"/> Site Investigation Report - Comprehensive	<input type="checkbox"/> Sampling Plan
<input type="checkbox"/> Site Investigation Report - Focused	<input type="checkbox"/> Health and Safety Plan
<input type="checkbox"/> Remediation Objectives Report-Tier 1 or 2	<input type="checkbox"/> Community Relations Plan
<input type="checkbox"/> Remediation Objectives Report-Tier 3	<input type="checkbox"/> Risk Assessment
<input type="checkbox"/> Remedial Action Plan	<input type="checkbox"/> Contaminant Fate & Transport Modeling
<input type="checkbox"/> Remedial Action Completion Report	<input type="checkbox"/> Environmental Remediation Tax Credit - Budget Plan Review
	Other: _____

Document Title: _____	Date of Preparation of Plan or Report: _____
Prepared by: _____	Prepared for: _____
Type of Document Submitted:	
<input type="checkbox"/> Site Investigation Report - Comprehensive	<input type="checkbox"/> Sampling Plan
<input type="checkbox"/> Site Investigation Report - Focused	<input type="checkbox"/> Health and Safety Plan
<input type="checkbox"/> Remediation Objectives Report-Tier 1 or 2	<input type="checkbox"/> Community Relations Plan
<input type="checkbox"/> Remediation Objectives Report-Tier 3	<input type="checkbox"/> Risk Assessment
<input type="checkbox"/> Remedial Action Plan	<input type="checkbox"/> Contaminant Fate & Transport Modeling
<input type="checkbox"/> Remedial Action Completion Report	<input type="checkbox"/> Environmental Remediation Tax Credit - Budget Plan Review
	Other: _____

Document Title: _____	Date of Preparation of Plan or Report: _____
Prepared by: _____	Prepared for: _____
Type of Document Submitted:	
<input type="checkbox"/> Site Investigation Report - Comprehensive	<input type="checkbox"/> Sampling Plan
<input type="checkbox"/> Site Investigation Report - Focused	<input type="checkbox"/> Health and Safety Plan
<input type="checkbox"/> Remediation Objectives Report-Tier 1 or 2	<input type="checkbox"/> Community Relations Plan
<input type="checkbox"/> Remediation Objectives Report-Tier 3	<input type="checkbox"/> Risk Assessment
<input type="checkbox"/> Remedial Action Plan	<input type="checkbox"/> Contaminant Fate & Transport Modeling
<input type="checkbox"/> Remedial Action Completion Report	<input type="checkbox"/> Environmental Remediation Tax Credit - Budget Plan Review
	Other: _____

VI. Professional Engineer's Seal or Stamp:

I attest that all site investigations or remedial activities that are the subject of this plan(s) or report(s) were performed under my direction, and this document and all attachments were prepared under my direction or reviewed by me, and to the best of my knowledge and belief, the work described in the plan and report has been designed or completed in accordance with the Illinois Environmental Protection Act (Act 5), 35 Ill. Adm. Code 740, and generally accepted engineering practices, and the information presented is accurate and complete.

Engineer Name: Robert Edelman

Company: Mabbett & Associates Phone: (781) 275-6050

Registration Number: 0062-051838

Signature: Robert D Edelman

License Expiration Date: 11/30/01

Professional Engineer Stamp: 